State Of California The Resources Agency of California

Memorandum

Date : December 7, 2000
Telephone: (916) 653-1614

To : William J. Keese, Chairman and Presiding Member
Robert A. Laurie, Commissioner and Associate Member

File: Rebuttal & Errata.Doc

From : California Energy Commission - Richard K. Buell
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Siting Project Manager

Subject : **THREE MOUNTAIN POWER PROJECT ~ Staff's Rebuttal and Errata for FSA Part 2 and Part 3 Issues**

The Three Mountain Power Project Committee's December 1, 2000 order ***Notice of Revised Schedule and Order for Prehearing Conference Statements*** directed parties to file their rebuttal testimony on December 7, 2000. Attached is staff's Rebuttal to Burney Resource Group's Air Quality Testimony, staff Rebuttal to Black Ranch's Air Quality Testimony, and staff's Rebuttal to the applicant's Noise Testimony. Also include in this submittal are written errata to staff's Air Quality and Biological Resources Final Staff Assessment testimonies. Staff is working on errata to its conditions of certification for Soil & Water Resources. These will be served on the parties with staff's prehearing conference statement on December 11, 2000.

In addition, attached to this filing is a stipulation reached between the applicant and staff regarding Biological Resources and Soil & Water Resources. The copy of the stipulation filed today with the Docket Unit contains a copy of the applicant's faxed signature. Tomorrow staff will receive the original inked copy from the applicant, which staff will sign and then Docket. We will not resubmit a copy of the original copy to the project proof of service list.

Staff has also include with this submittal declarations for Project Description, Land Use, Power Plant Reliability, Power Plant Efficiency, Public Health, Visual Resources, and Waste Management. Staff hopes these issues can be taken by declaration at the hearings.

This rebuttal, errata and stipulation will be presented at the Evidentiary Hearing Scheduled for December 18 and 19. If you have any questions please call me at (916) 653-1614, or email me at rbuell@energy.state.ca.us.

rkb:RKB

cc: Three Mountain POS List
CVRWQCB
CDFG
Mr. Michael Kussow, P.E.

REBUTTAL TO THE TESTIMONY OF THE BURNEY RESOURCE GROUP

Tuan Ngo, P.E.

This testimony responds to the testimony of intervenor Burney Resources Group (BRG), filed in the names of Greg Gilbert, Allan Bedwell and Boris Reyes. The BRG testimony addressed significant impacts from direct and secondary particulate matter less than 10 microns (PM10) emissions from the proposed project on ambient air quality. In essence, BRG alleges that staff, in its FSA, has not adequately addressed the impacts of the project's direct, and the secondary PM10 from "ammonia slip", a byproduct of the selective catalytic reduction (SCR) system. BRG believes that secondary PM10, formed in the atmosphere from ammonia slip, was underestimated, and that the SCONOX control technology, which produces no ammonia, is essential mitigation for the project.

BRG alleges that the TMPP ammonia emissions will combine with the project's sulfur dioxide (SO2) and nitrogen oxide (NOx) and will contribute 2.34 tons per year (TPY) of ammonium sulfate, and 84.1 TPY of ammonium nitrate to the environment. These secondary PM10 emissions estimates are based on the testimony of Phyllis Fox, Ph.D., on behalf of California Unions for Reliable Energy for Elk Hills Power Project (AFC-99-1).

To arrive at the 2.34 TPY of ammonium sulfates, BRG relies on a natural gas sulfur content of 1grain per 100 cubic feet (gr./100scf) and a 100 percent conversion rate of sulfate ions (SO3) with ammonia to form ammonium sulfates.

To arrive at the 84.1 TPY of ammonium nitrate emissions, BRG relies on a 100 percent rate of conversion from NO2 to ammonium nitrate.

STAFF RESPONSES

In the Setting Section of the staff testimony (pages 25 and 26), staff has provided evidence that the Burney area experiences violations of the state PM10 ambient air quality standard. Measured violations occurred between the months of November through March when the weather was cold. Staff also presented evidence that the PM10 violations are caused primarily by residential wood heating devices. Although the measured data (1989-1993) did not show any significant improvement in the magnitude of violations, the data indicated a reduction in the frequency of PM10 violations. The data from the measured period indicated no violations of the federal 24-hour or annual PM10 standards.

In the Project Emissions Section (pages 29-31), staff has provided the project annual emissions for PM10 as 174 TPY for the GE turbines configuration, and 144 TPY for the Westinghouse turbine configuration. The project sulfur dioxide (SO2) emissions for either the GE or Westinghouse turbine configuration were estimated as 10 TPY. The ammonia emissions from either configuration were estimated to be up to 1,200 pounds per day (lbs/d) and the expected normal daily ammonia emissions will be up to 150 lbs/d, which is equivalent to about 1 ppm ammonia slip.

In the Staff Proposed Mitigation Section (pages 40-42), staff recommends that, in addition to road paving mitigation, the applicant should subsidize the replacement of existing residential wood stoves and fireplaces with EPA Phase II certified wood stoves and fireplace inserts to willing residents in the local area. Because the area's primary source of PM10 violations is residential heating devices, replacement of older units with newer, cleaner and more efficient units will result in reductions of PM10, volatile organic compounds (VOC), and to a lesser extent, NOx and SOx; all of which are direct PM10 or precursors to PM10 formation. Staff has not suggested PM10 reduction mitigation during the other periods of the year because the facility PM10 emission impacts during periods other than winter are not significant.

Staff has estimated that the combined wintertime PM10 and SO2 emissions from the project will be about 46 TPY and 38 TPY for the GE and the Westinghouse configuration, respectively. Replacing 465 existing wood stoves with EPA certified units would reduce 46 TPY of directly emitted PM10, which are enough to mitigate the project's PM10 and SO2 emissions if GE turbines are used. Similarly, replacing 389 existing wood stoves with EPA certified units would reduce 38 TPY necessary to mitigate the project PM10 and SO2 emissions if Westinghouse turbines are used. Staff therefore concludes that the project contribution to PM10 violations in Burney during winter is reduced to a level of less than significance.

PROBLEMS WITH THE BRG TESTIMONY

The BRG testimony makes two important assumptions that lead to erroneous conclusions. First, it overestimates the likely level of "ammonia slip" emissions. Second, it greatly overestimates the conversion rate of ammonia emissions to secondary PM10. These problems are discussed separately below.

AMMONIA SLIP LEVELS

As for ammonia emissions, staff believes that the emissions levels discussed in the FSA are many times over the expected emissions from this facility. Staff has secured source test results of a similar GE frame 7F turbine configuration (River Road Generating Project, attached as Appendix A) that is equipped with SCR system. The test results show that the project's actual ammonia slip emissions, since 1997 to 2000, are in the range of 0.01 to 0.2 ppm levels, which are 1 to 20 percent of staff estimated ammonia emissions for the TMPP project. This translated to an ammonia emission rate of one pound to 13 lbs per day. The emissions level from this source test should be comparable to those of the project.

CONVERSION RATES OF AMMONIA

BRG's ammonia emission estimates thus greatly overstate the secondary PM10 impacts of the project. This error is compounded by an even greater error—the assumption that all sulfate ions (SO3) and NO2 will convert to secondary PM10. Below is a description of the deficiencies of BRG secondary PM10 emissions estimates using the above assumptions.

AMMONIUM SULFATES EMISSIONS

Staff believes that BRG has overestimated the ammonium sulfates emissions due to the following reasons:

1. The ammonium sulfates emissions were estimated by BRG from natural gas sulfur content of 1 gr./100 scf. The sulfur content of natural gas being burned at the TMPP facility is limited to 0.4 gr./100 scf, which is 60 percent lower than the value BRG used.

2. Most, if not all sulfates ions (SO3) will be captured during source testing and counted as direct PM10 emissions. In simple terms, the direct PM10 emission estimates included sulfate compounds formed from the sulfate ions. Therefore, assuming (as does the BRG testimony) 100 percent conversion of the sulfate ions, which are already counted as PM10, to ammonium sulfates will result in double counting of secondary PM10 emissions.

3. Pages 35 and 36 of the FSA provide a qualitative assessment of ammonium sulfate emissions, which was based on a conversion rate of SO2 to sulfates of approximately 1% per hour. Using Phyllis Fox assumed conversion rate of 3 percent SO2 to SO3 (see BRG testimony, attachment G), the ammonium sulfate emissions should be approximately 0.6 TPY, not 2.34 TPY claimed by BRG. At this emissions rate, the equivalent secondary PM10 emission impact would be at most 0.04 μg/m3. This level of impact is too low to be measured by ambient monitoring equipment.

4. It should be noted that all SO2 emissions and all ammonium sulfate emissions have been mitigated with the direct PM10 emission reduction credits. Therefore, staff has concluded that the ammonium sulfates emission impact is reduced to the level of less than significant

AMMONIUM NITRATES EMISSIONS

Staff also believes that BRG has overestimated the ammonium nitrates emissions due to the following reasons:

1. As mentioned earlier, staff believes that the actual ammonia emissions will be much less than the 5 ppm BRG used to estimated ammonium nitrates emissions. The expected ammonia emissions at the TMPP facility is expected to be in the 0.01 to 0.2 ppm (see source test report in Appendix A). At this ammonia emission range, the expected ammonia emissions are only at between 0.2 to 4 percent of the ammonia emissions BRG has calculated.

2. On page 35 of the FSA, staff has provided a qualitative analysis of the TMPP facility's ammonium nitrates emissions. Staff used available research data (Spicer, 1982) that report between 10 to 30 percent conversion of NO2, depending on how polluted the area. Because the air quality in Burney is relatively clean, staff has assumed a 10 percent conversion rate from NOx to ammonium nitrate. At this conversion rate and the expected ammonia emission range (0.01 to 0.2 ppm), the secondary PM10 emission impacts that are

attributed to ammonia is 0.005 μg/m3. This level of impact is too low to be measured by ambient monitoring equipment.

3. Using the same references provided by BRG and Phyllis Fox (Atmospheric Chemistry and Physics-Attachment E of BRG testimony), the rate of conversion of NO2 to ammonium nitrate will depend on the concentrations of ammonium nitrate, ammonia and nitric acid in the ambient air. First of all, NO2 will need sufficient hydroxyl [OH] radical in the atmosphere to transform to nitric acid in gaseous form. Because the local area ambient air are relatively clean, the hydroxyl radical is limited; therefore, the rate of formation of nitric acid is also limited (FSA, page 35). Once nitric acid has formed, it will react with the ammonia in the atmosphere to produce ammonium nitrate. But the reaction is reversible, i.e., once a certain concentration of ammonium is reached, the reaction will stop. The system is said to reach an equilibrium state. [This state of equilibrium will be determined solely by the dissociation constant, which is solely depended on the ambient temperature.] Therefore, a rate of conversion of 100 percent NO2 (assumed by the BRG testimony) to ammonium nitrates is not possible.

4. BRG also alleges that ammonium nitrates emissions were not mitigated. This overlooks the fact that the wood stove replacement program will also result in approximately 100 to 115 TPY of volatile organic compounds, and smaller quantities of NO2, SO2 (PM 10 precursor emissions) and additional PM10 emission reductions due to the increase in efficiency of the new wood stoves, i.e., less wood burned. As stated in the FSA (page 42), staff believes that the emission reductions resulting from wood stove replacement program will effectively mitigate the project direct and secondary PM10 to a level of less than significance.

CONCLUSIONS

Staff still believes that the project direct and secondary PM10 emissions impacts are adequately mitigated to a level of less than significance. Therefore, no additional mitigation is needed.

APPENDIX A

1997 through 2000 summary of source test results and initial source test report of the River Road Generating Project.

REBUTTAL TO THE TESTIMONY OF BLACK RANCH

Tuan Ngo, P.E.

This testimony responds to the testimony of intervenor Black Ranch, filed in the name of Russell E. Erbes. In essence, Black Ranch believes that additional organic compound (VOC) and particulate matter (PM10) emission reduction credits should be secured to mitigate the Three Mountain Power Plant (TMPP) VOC and sulfates emissions. In addition, Black Ranch requests that conditions should be imposed to clarify the Shasta County Air Pollution Control District (District) 5 percent "net air quality benefit", and to prevent the applicant to bank the future excess offsets with the District.

Black Ranch alleges that the applicant has proposed that two pounds of VOC emission reduction credit will mitigate every pound of new VOC emissions from the proposed TMPP facility. Therefore, to achieve the necessary VOC emission reductions credit, the number of wood stoves staff has recommended in the staff analysis will have to be adjusted upward.

Black Ranch alleges that because the molecular weight different between sulfur dioxide (SO2) and ammonium sulfates [(NH3)2 SO4], additional PM10 emission reduction credits should be provided to mitigate the project's ammonium sulfate emissions.

Black Ranch alleges that the current offset proposal is not adequate to preserve a net air quality benefit, a requirement from the District New Source Review rule. To preserve such benefit, Black Ranch recommends that an additional 5 percent emission reduction should be incorporated into the staff assessment.

Black Ranch alleges that the applicant's mitigation proposal (offsets) may achieve a greater amount of emission reductions than required by proposed conditions of certification. Therefore, condition should be required to prevent the applicant from banking of excess emission reductions beyond the required amount.

STAFF RESPONSES

The proposed TMPP facility is required to provide up to 153 tons per year (TPY) of NOx, 65 TPY of VOC emission reduction credits to offset its new emissions. In addition, the applicant is also required to pave a certain length of road from the candidate pool to provide up to 138 TPY of PM10 emission reductions. The aforementioned mitigation measures are required by the County General Plan Air Quality Policy 2.e. Staff also recommends that the applicant subsidize the replacement of up to 465 wood stoves as a program to mitigate the significant PM10 emission impact to the Burney area. Staff

has concluded that with all the above mitigation measures being implemented, the project's emission impacts will be reduced to a level of less than significant.

PROBLEMS WITH BLACK RANCH TESTIMONY

VOC EMISSION REDUCTION CREDITS

The applicant has not proposed the "two to one" offset ratio as alleged by Black Ranch. The District has required VOC offsets as mandated by the Shasta County General Plan. No further offsets are required.

FIVE PERCENT NET AIR QUALITY BENEFIT

The 5 percent net air quality benefit is a requirement from the District Rule 2.2 "Emission Reduction Credit and Banking Rule", Section H. This section states that the District will take 5 percent of the emission reductions before the emission reduction credits are granted. The applicant has purchased emission reduction credits that are banked, therefore, the five percent adjustment has been made.

PM10 OFFSETS FOR SULFATE EMISSIONS

Black Ranch has assumed that all SO2 emitted from the TMPP facility will be converted to ammonium sulfates. Staff believes that the conversion rate of SO2 to sulfates would be in the one percent per hour range, therefore, the PM10 offsets recommended by staff are adequate (see additional detailed discussion about this topic in the staff's Rebuttal to Burney Resource Group).

BANKING OF EXCESS EMISSION REDUCTIONS

Staff believes that the offset proposal will be treated as a specific mitigation measure dedicated to lessen the impacts from the TMPP facility. The emission reductions, even if it is excessive, will not be considered surplus for any other purpose.

CONCLUSION

Staff believes that the TMPP emission impacts are adequately mitigated as recommended in the staff Final Staff Assessment (FSA); therefore, there is no need for additional mitigation and certification condition beyond that are recommended by staff in the FSA.

ERRATA FOR AIR QUALITY TESTIMONY

Tuan Ngo, P.E.

1. Page 21, last sentence of the sixth paragraph is changed to read:
   "The wind roses indicate that the area experiences a large percentage of calms in winter, 18~~46~~ percent, compared to 8~~12~~ percent of calms in spring, 3~~6~~ percent of calms in summer, and 11~~30~~ percent of calms in fall."

2. Page 28, third bullet from the top is changed to read: "One [hybrid configuration] wet and one dry cooling towers, and"

3. Page 28, delete the third sentence of the third paragraph from the bottom.

4. Page 28, delete the word three, and replace it with "four and half" in the sixth sentence of the third paragraph from the bottom.

5. Page 29, Air Quality Table 5, delete all start-up time durations of GE and Westinghouse turbines.

6. Page 30, Air Quality Table 7, change the SO2 emissions to 10 tons per year, and change the steady state PM10 emissions to 174 and 144 for the GE and Westinghouse turbines, respectively.

7. Page 34, Air Quality Table 9, change the 1-hour NO2 background ambient concentration to 132 µg/m3.

8. Page 38, first sentence of the last paragraph is changed to read:
   "The applicant has identified three~~four~~ county owned candidate roads (Goose Valley~~, Jackrabbit Flat~~, Tamarack, and Mountain View roads) and a number of~~six~~ privately owned roads (Cottonwood, Fairfield, Vallejo, Estes, Ivan Marx, Washburn, Pit River Casino parking lot, Bailey, Apple Orchard, and Goose Creek) near the town of Burney, that can be paved to offset the TMPP's 184~~179~~ TPY of PM10 and sulfur dioxide (a precursor to PM10) emission increases."

9. Page 39, second sentence of the fifth paragraph, replace the word "no" with the

10. Page 43, first sentence of the fifth paragraph, replace the word "construction"

11. Page 46, first sentence of the fourth paragraph, replace the word "month" with "year".

12. Page 47, first sentence of the first paragraph, replace "AQ-24" with "AQ-25".

13. Page 47, second sentence of the first paragraph, replace "AQ-25" with "AQ-26".

14. Page 47, first sentence of the third paragraph, replace "AQ-28" with "AQ-29".

15. Page 47, second sentence of the third paragraph, replace the word “NOx” with

16. Page 47, last sentence of the third paragraph, replace “AQ-60” with “AQ-61”.

17. Page 47, fourth sentence of the third paragraph, add the word “recommended” after “District’s” and delete the words “of Certification”.

18. Page 47, last sentence of the fourth paragraph is changed to read: “These are presented here as Conditions AQ-1 to AQ-25~~4~~, AQ-27~~6~~, AQ-28~~7~~, and AQ-30~~29~~ to AQ-62~~1~~.”

19. Replace the entire CONDITIONS OF CERTIFICATION with the attached set.

CONDITIONS OF CERTIFICATION

AQ-1. This Authority to Construct (PSD Permit) is issued in accordance with the rules and regulations of the District and pursuant to the delegation of PSD authority by the Environmental Protection Agency (EPA), Region IX, on July 8, 1985. If any provision of this permit is found invalid, such finding shall not affect the remaining provisions. Note: This permit does not constitute a final decision regarding the Final PSD Permit. This is due to the fact that the USEPA/USFWS Endangered Species Act consultation related to the potential impacts of the proposed project to listed endangered species is in process. That process is expected to be completed with USFWS issuance of a Biological Opinion. The District will issue the decision on the Final ATC/PSD permit after the Section 7 consultation process is completed and after USEPA has determined that issuance of the permit will be consistent with USEPA's obligations under the Endangered Species Act. Accordingly, any PSD conditions in this permit (as noted following each condition) are not final at this time, and the District will issue the Final ATC/PSD permit conditions for the subject project, if appropriate to do so, upon completion of the consultation process and USEPA's determination. [Non-PSD]

Verification: The project owner shall provide a copy to the CPM of the final Authority to Construct/Prevention of Significant Deterioration permit 15 days upon its issuance by the Shasta County Air Pollution Control District.

AQ-2. The owner/operator must obtain an Authority to Construct (PSD Permit) from the District and certification from the California Energy Commission (CEC) prior to commencing construction on the project site. If a permit is required from the U.S. Fish & Wildlife Service or the California Department of Fish and Game regarding impacts to endangered species, then the owner/operator shall be responsible for assuring that these requirements are met to the satisfaction of the above-named agencies and EPA Region IX as required by law. [PSD]

Verification: The project owner shall provide a copy to the CPM of the final Authority to Construct/Prevention of Significant Deterioration permit 15 days upon its issuance by the Shasta County Air Pollution Control District.

AQ-3. In the event of any changes in control or ownership of facilities to be constructed or modified, this Authority to Construct (PSD Permit) shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Authority to Construct (PSD Permit) and its conditions by letter, a copy of which shall be forwarded to the Air Pollution Control Officer (APCO) of the Shasta County Air Quality Management District (District), the California Air Resources Board (CARB), and the EPA. [PSD]

Verification: No later than 30 days following a Commission approved change of ownership, the project owner will forward to the CPM a copy of the letter that notifies the succeeding owner and operator of the existence of the Authority to Construct/Prevention of Significant Deterioration permit and the conditions contained therein.

AQ-4. Equipment is to be maintained so that it operates as it did when the permit was issued.

Verification: See Verification of Condition AQ-59.

AQ-5. If construction has not physically commenced on the site within two (2 years) from the date of issuance of this permit, the Authority to Construct (PSD Permit) shall become invalid in accordance with District Rule 2:12. [Non-PSD]

Verification: The project owner shall submit to the District a copy of the CPM's authorization to commence construction.

AQ-6. Acceptance of this permit is deemed acceptance of all conditions as specified. All equipment, facilities, and systems shall be designed and operated in a manner that maintains compliance with the conditions of this permit, applicable provisions of 40 CFR Parts 52, 60, 61, 68, 72 and any other applicable local, State, or Federal regulations. Failure to comply with any condition of this permit or the Rules and Regulations of the District shall be grounds for revocation, either by the APCO or the District Hearing Board. [PSD]

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-7. The District reserves the right to amend this permit, if the need arises, in order to insure compliance of this facility with applicable local, State, or Federal regulations, or to abate any public nuisance. [Non-PSD]

Verification: The project owner shall seek prior approval from the District and the Commission prior to any modification deemed necessary to comply with Condition AQ-7.

AQ-8. Periods of excess emissions, upsets, breakdowns, or malfunctions shall be reported to the District, in accordance with District Rule 3:10, within four hours of occurrence. In no event shall the equipment be operated with the emission control equipment in a malfunctioning condition beyond the end of the work shift or 24 hours, whichever occurs first. [Non-PSD]

Verification: The project owner shall notify the District of excess emissions, upsets, breakdowns, or malfunctions within four hours of occurrence. Copies of excess emissions or breakdown reports shall be included in the monthly reports required in Condition AQ-59.

AQ-9. This facility is subject to all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act of 1987, as cited in California Health and Safety Code Sections 44300 et seq. [Non-PSD]

Verification: Project owner shall prepare and submit to the District a Toxic Hot Spots emission inventory by the first month of August following the first full calendar year of facility operational history, and annually thereafter.

AQ-10. This facility is subject to the applicable provisions of Title V of the Federal Clean Air Act of 1990. [Non-PSD]

Verification: Within twelve (12) months after operational startup, the project owner shall apply for, and shall provide the CPM a copy of the Title V Federal Operating Permit within 30 days from the date of receiving such permit.

AQ-11. The right of entry described in California Health and Safety Code Section 41510, Division 26, shall apply at all times. The Regional Administrator of the EPA, the Executive Officer of the California Air Resources Board, the APCO, and/or their authorized representatives, upon the presentation of credentials shall be permitted:

a. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Authority to Construct; and
b. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this Authority to Construct; and
c. to inspect any equipment, operation, or method required in this Authority to Construct; and
d. to sample emissions from any and all emission sources within the facility. [Non-PSD]

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-12. The owner/operator shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, continuous emissions records, excess emissions, breakdowns, etc.), source test and analytical records, emission calculation records, records of plant upsets and related incidents. All records and emission test results requested to be kept under the terms and conditions of this Authority to Construct shall be made available to the District staff upon request. [Non-PSD]

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-13. The operating staff with management authority at this facility shall be advised of and be familiar with all the conditions of this permit. [Non-PSD]

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-14. References to rules, regulations, etc., within this permit shall be interpreted as referring to such rules and regulations in their present configuration and language as of the date of issuance of this permit. [Non-PSD]

Verification: The project owner shall provide copies to the CPM of the Permits to Operate issued by the District within 30 days of receipt of such Permits.

AQ-15. The owner/operator shall provide the following Best Available Mitigation Measures in accordance with the Air Quality Element of the Shasta County General Plan upon startup:

a. On-site services such as food vending machines as appropriate and in compliance with local development regulations.
b. Mobile lunch service to serve the facility if available.
c. On-site pedestrian facility improvements such as walking paths and building access which are physically separated from street and parking lot traffic.
d. A parking lot design that does not impede a clear, direct pathway for safe, easy movement of pedestrians.
e. Adequate bicycle storage/parking facilities at a minimum of one bicycle space for every 20 automobile spaces.
f. Preferential parking spaces for carpools and van pools.

[Non-PSD]

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-16. As per California Health & Safety Code Section 41700, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injure or damage to business or property. [Non-PSD]

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-17. The owner/operator shall provide to the California Energy Commission (CEC) Construction Project Manager (CPM) a copy of the facility Permit(s) to Operate within fifteen (15) days of issuance. [Non-PSD]

Verification: The project owner shall provide to the CPM a copy of the Permit to Operate within 15 days of its issuance by the District.

AQ-18. The owner/operator shall certify compliance with the requirements of 40 CFR Part 68 Risk Management Plan requirements as applicable as part of the compliance certification required by Title V of the Federal Clean Air Act. [Non-PSD]

Verification: The project owner shall submit a copy of the certification of compliance with the requirements of 40 CFR Part 68 Risk Management Plan to the CPM.

AQ-19. The owner/operator shall meet the provisions of the Federal Acid Rain Program (Title IV) program by filing for an Acid Rain permit 24 months before operational startup and by certifying NO_X and O_2 CEMs within 90 days after operational startup. [Non-PSD]

Verification: No more than 30 days after receiving the federal Acid Rain permit, the project owner shall provide the District and the CPM a copy of such permit.

AQ-20. If General Electric PG7241FA gas turbines are utilized for the project, the total NOx Emission Reduction Credits (ERC) purchased for the project shall be 144 tons/year (71,014 pounds in Calendar Quarter I, 71,803 pounds in Calendar Quarter II, 72,592 pounds in Calendar Quarter III, and 72,592 pounds in Calendar Quarter IV). The total VOC ERCs purchased for the project shall be 41 tons/year (20,219 pounds in Calendar Quarter I, 20,444 pounds in Calendar Quarter II, 20, 668 pounds in Calendar Quarter III, and 20,668 pounds in Calendar Quarter IV). The ERC's shall be purchased from Sierra Pacific Industries, Inc. available on Certificate No. 97-ERC-02 previously entered in the District ERC bank.

If Westinghouse 501F gas turbines are utilized for the project, the total NOx Emission Reduction Credits (ERC) purchased for the project shall be 130 tons/year (64,116 pounds in Calendar Quarter I, 64,818 pounds in Calendar Quarter II, 65,534 pounds in Calendar Quarter III, and 65,534 pounds in Calendar Quarter IV). The total VOC ERCs purchased for the project shall be 65 tons/year (32,058 pounds in Calendar Quarter I, 32,409 pounds in Calendar Quarter II, 32,656 pounds in Calendar Quarter III, and 32,656 pounds in Calendar Quarter IV). The ERC's shall be purchased from Sierra Pacific Industries, Inc. available on Certificate No. 97-ERC-02 previously entered in the District ERC bank.
[Non-PSD]

Verification: Thirty days prior to commencement of rough grading, the project owner shall provide the District and the CPM for approval the required documentation of this condition.

AQ-21. Paving of unpaved portions of any of the following roads in the Burney area shall be provided in order to create an emission offset of either 138 tons per year (based on use of General Electric PG7241FA turbines @ 75% of $_{10}$ emissions) or 115.5 tons per year (based on use of Westinghouse 501F turbines @ 75% of the project's 154 tons/year PM_{10} emissions) quantified in a manner acceptable to the APCO and CEC CPM by using Sections 13.2.1 and 13.2.2 of EPA's Compilation of Air Pollution Emission Factors AP-42 document:

ROADS
Goose Valley Road
Estes Avenue
Fairfield Street
Goose Creek Road
Vallejo Street
Apple Orchard Lane
Bailey Ave.
Cottonwood Street
Tamarack Road
Washburn Road
Ivan Marx Road
Pit River Casino Parking Lot
Mountain View Road

Note: The road selection and distance of the roads to be paved above may be changed upon approval of the APCO and the CEC CPM provided that the total PM_{10} offset remains the same. A copy of executed legally binding contracts between the applicant and Shasta County or any applicable road maintenance district shall be provided to the District and the CEC CPM at the conclusion of paving, ensuring the maintenance of said roads or paved areas.
[Non-PSD]

Verification: No sooner than 30 days prior to commencement of construction, the project owner shall provide the District and the CPM the appropriate documentation that the emission offsets have been secured per the requirements of this condition. That documentation shall include all assumptions, data and calculations to derive the lengths of roads to be paved. At the conclusion of road paving, the project owner shall provide a copy to the District and the CPM of the executed legally binding contracts between the project owner and Shasta County or any applicable road maintenance district ensuring the maintenance of said road or paved areas. No more than thirty (30) days after paving the roads, the project owner shall provide pictures of before and after road paving.

AQ-22. A fireplace retrofit/woodstove replacement fund shall be made available on a first-come, first-serve basis to finance a five-year voluntary woodstove replacement/fireplace retrofit program which shall provide a minimum PM_{10} emission offset of either 46 tons/year (based on use of General Electric PG7241FA turbines @ 25% of the project's 184 tons/year PM_{10} emissions) or 38.5 tons/year (based on use of Westinghouse 501F turbines @ 25% of

the project's 154 tons/year PM_{10} emissions). The replacement fund shall pay for the retrofit/ replacement costs of at least 465 (based on use of General Electric PG7241FA turbines) or 389 (based on use of Westinghouse 501F turbines) current non-EPA certified fireplaces and woodstoves (up to a maximum of $1225 for each retrofit/replacement) with either an EPA-certified solid fuel heating device, a propane heating device, or a natural gas heating device. The fund shall be capable of being drawn upon in any year of the five year program and as allowed by conditions of CEC certification until the fund is depleted. Each resident participating in the retrofit/replacement program would only do business with the retailer and a professional, licensed installer. Payments shall be made to vendors or contractors who agree to participate in the program and who submit certification that the retrofit/replacement was permanent (by dedicated natural gas, or propane fuel, or permanent removal of the woodstove doors and proper recycling of the old stove), conformed to the program, and resulted in direct savings to the consumer/end user. Quarterly status reports on the program and the status of the reimbursements and remaining fund available shall be made to the APCO and the CEC Construction Project Manager. For the first three years of the program, homes and businesses located within a six-mile radius of the proposed facility will be eligible to participate in the program. After the initial three years of the program period expire, if the fund has not been exhausted, homes and businesses within a fifteen-mile radius of the TMPP facility will be eligible to participate in the program in the fourth and fifth years. If the fund still has not been exhausted after the fifth year, the remaining amount will either be used to pave additional roads or be paid to Shasta County for use in PM_{10} emissions reduction programs administered by the Shasta County AQMD. The fund shall be audited annually and a report of program activity shall be submitted to the District and CEC project manager each year for review. [Non-PSD]

Verification: No later than 30 days prior to commencement of construction, the project owner shall provide the District and the CPM a copy of the approved wood stove replacement program. Quarterly status reports on the program and the status of the reimbursements and remaining funds available shall be submitted to the APCO and the CPM. The project owner shall submit by January 31 of each year to the District and the CPM a copy of the annual audit report.

AQ-23. The facility shall comply with all portions of the Federal New Source Performance Standards 40 CFR 60, Subpart A (General Provisions), Subpart Da (Standards of Performance for Electric Utility Steam Generating Units), and Subpart GG (Standards of Performance for Stationary Gas Turbines). Notification with respect to commencement of construction (30 day notice), anticipated date of startup (30 day notice), actual date of startup (within 15 days), and modifications which could increase emission rates (60 days or as soon as practicable) shall be provided to the EPA Administrator in accordance with 40 CFR 60.7. [PSD]

Verification: The project owner shall provide documentation to the District and CPM of the following notifications: 30 days prior to commencement of construction, 30 days prior to anticipated project start-up, within 15 days after actual date of start-up, and an amendment request to the CPM, and Commission approval of the request prior to increasing any emission limit in these Conditions of Certification.

AQ-24. This facility is subject to the applicable provisions of the National Emission Standards for Hazardous Air Pollutants for Combustion Turbines when the Standards in their final form are promulgated by EPA. Emission limits stated in the above provisions, however, do not supersede more stringent limits found in other conditions of this permit. [PSD]

Verification: The project owner shall provide copies to the CPM of the Permits to Operate issued by the District within 30 days of receipt of such Permits.

CONSTRUCTION PHASE CONDITIONS

AQ-25. During construction of this facility, the following fugitive emission control measures shall be implemented at the plant site:

(a) Suspend all land clearing, grading, earth moving, or excavation activities when winds (including instantaneous gusts) exceed 20 miles per hour.
(b) Apply water to active construction sites and unpaved roads at least twice daily to control fugitive dust.
(c) Apply sufficient water or dust suppressants to all material excavated, stockpiled, or graded to prevent fugitive dust from leaving the property boundaries and causing a public nuisance or a violation of an ambient air standard.
(d) Apply a non-toxic solid stabilizer to all inactive construction areas (previously graded areas which remain inactive for 96 hours).
(e) No on-site vehicle shall exceed a speed of 10 miles per hour on unpaved roads or areas.
(f) All trucks hauling dirt, sand, soil, or other loose material will be watered or covered and will maintain at least two feet of freeboard to prevent a public nuisance.
(g) Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
(h) Sweep streets with a water sweeper at the end of each day if visible soil materials are carried onto adjacent public or private paved roads.
(i) Re-establish ground cover on the construction site through seeding and watering as soon as possible, but no later than final occupancy.
(j) Implement all dust control measures in a timely and effective manner during all phases of project development and construction.
(k) Place sandbags adjacent to roadways to prevent run off to public roadways.

(l) Install wind breaks at the windward sides of construction areas prior to the soil being disturbed. The wind breaks shall remain in place until the soil is stabilized or permanently covered.

(m) Limit construction vehicles and equipment idle time to no more than 15 minutes.

[Non-PSD]

Verification: The project owner shall maintain a daily log of water truck activities, including record of the frequency of public road cleaning. These logs and records shall be available for inspection by the CPM during the construction period. The project owner shall identify in the monthly construction reports, the area(s) that the project owner shall cover or treat with dust suppressants. The project owner shall make the construction site available to the District staff and the CPM for inspection and monitoring.

AQ-26 The project owner shall install oxidizing soot filters on all suitable construction equipment used either on the power plant construction site or on associated linear construction sites. Suitability is to be determined by an independent California Licensed Mechanical Engineer, in consultation with the Air Resources Board (ARB), who will stamp and submit for approval an initial and all subsequent Suitability Reports. Where the oxidizing soot filter is determined to be unsuitable, the owner shall install and use an oxidation catalyst. In addition, ultra-low sulfur fuel (<15 ppm sulfur) shall be used whenever feasible. The initial Suitability Report shall contain, at a minimum, the following:

INITIAL SUITABILITY REPORT

- A list of all fuel burning, construction related equipment used,
- A determination of the suitability of each piece of equipment to firstly work appropriately with an oxidizing soot filter,
- A determination of the suitability of each piece of equipment to secondarily work appropriately with an oxidation catalyst,
- If a piece of equipment is determined to be suitable for an oxidizing soot filter,
- If a piece of equipment is determined to be unsuitable for an oxidizing soot filter, an explanation by the independent California Licensed Mechanical Engineer as to the cause of this determination,
- If a piece of equipment is determined to be unsuitable for an oxidizing soot filter, but suitable for an oxidation catalyst,
- If a piece of equipment is determined to be unsuitable for both an oxidizing soot filter and an oxidizing catalyst, an explanation by the independent California Licensed Mechanical Engineer as to the cause of this determination, and
- If ultra-low sulfur diesel fuel is not used, an evaluation of the feasibility of using ultra-low diesel fuel on construction equipment equipped with oxidizing soot filters or oxidizing catalysts.

INSTALLATION REPORT

Following the installation of either the oxidizing soot filter or oxidizing catalyst as prescribed in the Initial Suitability Report, a California Licensed Mechanical Engineer will issue an Installation Report that either confirms that the installed device is functioning properly or that installation was not possible and the cause.

SUBSEQUENT SUITABILITY REPORTS

If a piece of construction equipment is subsequently determined to be unsuitable for an oxidizing soot filter or oxidizing catalyst after such installation has occurred, the filter or catalyst may be removed immediately. However, notification must be sent to the CPM and ARB for approval containing an explanation for the change in suitability within 10 days. Changes in suitability are restricted to the following three explanations that must be identified in any subsequent suitability report. Changes in suitability may not be based on the use of high-pressure fuel injectors, timing retardation and/or reduced idle time.

a. The filter or catalyst is reducing normal availability of the construction equipment due to increased downtime, and/or power output due to excessive increased backpressure.

b. The filter or catalyst is causing or reasonably expected to cause significant damage to the construction equipment engine.

c. The filter or catalyst is causing or reasonably expected to cause a significant risk to nearby workers or the public.

Verification: The project owner will submit to the CPM and ARB for approval, the initial suitability report stamped by an independent California Licensed Mechanical Engineer, 30 days prior to breaking ground on the project site. The project owner will submit to the CPM and ARB for approval, subsequent suitability reports as required, stamped by an independent California Licensed Mechanical Engineer no later than 10 working days following a change in the suitability status of any construction equipment.

OPERATING CONDITIONS

AQ-27. Combustion turbines and duct burners shall be exclusively fueled with California PUC pipeline quality natural gas with a sulfur content not to exceed 0.4 grain per 100 standard cubic feet. [PSD]

Verification: The project owner shall secure documentation from the natural gas suppliers of the sulfur content of the fuel and submit such documentation as required in Condition AQ-59(g).

AQ-28. A continuous monitoring system shall be installed and maintained to monitor and record the fuel consumption being fired in each power train. The system must be accurate to within plus or minus five (5) percent. [PSD]

Verification: At least ninety (90) days prior to the start of rough grading, the project owner shall submit to the District and the CPM for approval the final selection and design details of the gas turbines and associated equipment, including all proposed post combustion control systems.

AQ-29 The project owner shall collect ambient concentration of ozone and PM10 at the existing Burney monitoring station for a continuous period of not exceeding five calendar years. Two years of which will be prior to actual operation of the facility.

Verification: Forty-five days following the end of each quarter, the project owner shall provide a quarterly report of the monitoring results of the previous quarter to the District and the CPM.

AQ-30. A continuous monitoring system complete with ammonia flow meter and injection pressure indicator shall be installed and maintained to monitor and record the ammonia injection rate on each SCR system. The system must be accurate to within plus or minus five (5) percent. [PSD]

Verification: At least ninety (90) days prior to the start of rough grading, the project owner shall submit to the District and the CPM for approval the final selection and design details of the gas turbines and associated equipment, including all proposed post combustion control systems.

AQ-31. Instrument shall be installed and maintained on each gas turbine power train to measure electrical energy production. [Non-PSD]

Verification: At least ninety (90) days prior to the start of rough grading, the project owner shall submit to the District and the CPM for approval the final selection and design details of the gas turbines and associated equipment, including all proposed post combustion control systems.

AQ-32. Prior to the initial firing of any fuel through either power train, a continuous emission monitoring system (CEM) shall be installed, calibrated, and operated on each HRSG exhaust to measure volumetric flow and concentrations of NOx and CO, and percent O2. The system shall meet monitoring and quality assurance specifications as required by *40 CFR 60.13; 40 CFR 60*, Appendix B, Specifications 2, 3, 4, 6; and *40 CFR 60*, Appendix F except that due to the extremely low permitted limits for NOx and CO concentrations, the relative accuracy procedure shall be defined as conducting a complete CEMS status check on an annual basis following the manufacturer's written instructions. The check should include operation of the light source, signal receiver, timing mechanism functions, data acquisition and data reduction functions, data recorders, mechanically operated functions (mirror movements, calibration gas valve operations, etc.), sample filters, sample line heaters, moisture traps, and other related functions of the CEMS, as applicable. The monitoring systems must also successfully pass the calibration and drift requirements of the equipment manufacturer.

(Reference *40 CFR 266*, Appendix IX, Section 2.1.9.) All continuous monitoring devices are to be re-calibrated quarterly in accordance with procedures under Section 60.13(b) of *40 CFR 60.*

The system shall continuously record the measured concentrations, and shall calculate and continuously record the NOx and CO concentrations corrected to a value at 15 percent O_2, dry. The NOx and CO CEMs shall have the capability of recording NOx and CO concentrations during all operating conditions, including startups and shutdowns. Multiple range analyzers or additional "coarse range" analyzers shall be provided as necessary to measure higher concentrations during startup periods. Due to the low concentrations of NOx with appreciable NO_2 expected during operation, chillers or condensers shall not be utilized in the CEMs for measuring NOx concentrations.

A computer data acquisition system which has the capability of interpreting the sampling data; providing a graphical trend analysis; and producing summary reports of the respective 1-hour and 3-hour averages of NOx and CO, and pounds per day and tons per year of NOx, CO, PM_{10}, SOx, and VOC emissions. The summary reports shall also include calculations of cooling tower PM_{10} emissions. [PSD]

Verification: At least ninety (90) days prior to the start of rough grading, the project owner shall submit to the District and the CPM for approval the final selection and design details of the gas turbines and associated equipment, including all proposed post combustion control systems.

AQ-33. As per District Rule 2:1A.b.2., the initial commissioning period shall not exceed more than 60 days (commencing with the first firing of fuel in the power train). The owner/operator shall minimize emissions to the maximum extent possible during the commissioning period.
[Non-PSD]

Verification: At least 90 days prior to first firing of the facility, the project owner shall submit to the APCO and the CPM for their approval an Initial Commissioning Test Plan that will include, but not be limited to the following:

a. A description of the initial commissioning activities that will take place,
b. The duration, in hours, of each initial commissioning activity,
c. A quantification of the criteria pollutant emissions, in either pounds per hour, or pounds per event, and
d. A description of what air emissions limiting equipment will be in place and operating during each initial commissioning activity.

AQ-34. Best Available Control Technology for the combustion turbines shall be defined as the following emission control technologies applied to each combustion turbine capable of achieving the emission standards specified in Condition AQ-38 of this permit:

Particulate Matter	State-of-the-art combustion turbines, good combustion practices, mist eliminators for lube oil vents, exclusive combustion of natural gas containing no more than 0.4 grain of sulfur per 100 standard cubic feet of natural gas
Oxides of Nitrogen	Dry low-NOx combustors, low-NOx duct burners, selective catalytic reduction with ammonia injection
Reactive Organic Compounds	Good combustion practices, coincidental VOC reduction by the use of a CO oxidation catalyst
Carbon Monoxide	Good combustion practices and use of a CO oxidation catalyst

[PSD]

Verification: At least ninety (90) days prior to the start of rough grading, the project owner shall submit to the District and the CPM for approval the final selection and design details of the gas turbines and associated equipment, including all proposed post combustion control systems.

AQ-35. Best Available Control Technology for the cooling tower shall be defined as the following emission control technologies capable of achieving the emission standards specified in Condition AQ-44 of this permit:

Particulate Matter	Hybrid configuration (wet and dry). Wet cooling tower equipped with 0.0005% drift rate drift eliminators, TDS limit of 5000 mg/liter

Verification: At least thirty (30) days prior to installation, the project owner shall submit to the District and the CPM a copy of the performance guarantee letter from the cooling tower manufacturer.

AQ-36. The dates and results of all visible emission evaluations required by Condition AQ-38 shall be recorded in a log and maintained for five years for District inspection upon request.

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-37. The following opacity limits shall apply at all times:

Emission Point	Opacity Limit
HRSG Exhausts	20% for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor as determined by EPA Method 9
Oil Mist Eliminator Vents	20% for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor as determined by EPA Method 9
Emissions from Any Other Source on Site	40% or Ringlemann 2 for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-38. Emissions from each gas turbine, duct burner, and associated HRSG shall meet all of the emission limitations listed in a. through g. below for each power train at any firing rate and ambient conditions (except as noted in Condition AQ-39):

Pollutant	GE	Westinghouse	Either CTG Manufacturer	Verification
NOx as NO_2	18.9[2] pounds per hour	16.8[2] pounds per hour	2.5 ppmvd[2], 1-hr rolling averaging @ 15% O_2	Verified by CEMS and annual compliance test at maximum operating capacity of the turbines[1]
CO	18.5 pounds per hour	16.3 pounds per hour	4 ppmvd, 3-hr rolling averaging @ 15% O_2	Verified by CEMS and annual compliance test at maximum operating capacity of the turbines[1]
Ammonia slip	12.8 pounds per hour	12.8 pounds per hour	5 ppmvd, 3-hour rolling averaging @ 15% O_2	Verified by annual compliance test at maximum operating capacity of the turbines and continuous recording of the injection rate
VOC	5.3 pounds per hour	4.4 pounds per hour	2 ppmvd, 1-hour rolling averaging @ 15% O_2	Verified by annual compliance test at maximum operating capacity of the turbines and VOC/CO algorithms developed from initial source tests
PM_{10} (filterable + condensable)	22.1 pounds per hour	16.4 pounds per hour	0.0012 grain/dscf, 1-hour averaging @ 3% CO_2	Verified by annual compliance test at maximum operating capacity of the turbines and algorithms developed from initial source tests
Opacity			<20% for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor as determined by EPA Method 9	Verified by monthly visible emission evaluations and annual compliance test at maximum operating capacity of the turbines
Sox as SO_2	1.24 pounds per hour	1.24 pounds per hour		Verified by fuel sulfur content and fuel use data

Notes: [1]After the first ***five*** annual compliance tests and upon written request to the APCO with adequate justification (consistent demonstration of compliance), the owner/operator may, if allowed by the APCO, use CEM data to verify compliance with the NOx and CO emissions specified above. The owner/operator may also reduce the frequency of testing for VOC and SOx emissions from the HRSG exhaust and the PM_{10} emission testing of the cooling tower after the first ***five*** annual compliance test if consistent demonstration of compliance has occurred and if allowed by the APCO in accordance with District Rule 2:11a.3.(f).

[2] The owner/operator shall install a SCR system that is designed to meet a NOx emission limit of no more than 2.0 ppm, based on a 1-hour rolling average (Demonstration NOx Limit), and guaranteed by the SCR vendor to meet the Demonstration NOx Limit, to the extent that the SCR vendor will provide such a guarantee to the owner/operator. The owner/operator shall install, operate, and maintain the SCR system in a manner designed to achieve the Demonstration NOx Limit, and in conformance with the SCR vendor's installation, operation, and maintenance procedures. For a period of three years commencing with commercial operations, the owner/operator will conduct a demonstration program with District and the CEC CPM oversight to determine whether the owner/operator is able to reliably and continuously operate while maintaining the Demonstration NOx Limit. (The District shall consider allowable excess emissions in accordance with District Rule 3:10 when evaluating the facility's performance with respect to the Demonstration NOx Limit. In addition, the District will consider whether the Demonstration NOx Limit has been achieved on a consistent basis within the allowances under District Rule 3:10 with suitable compliance margin of at least 10% over the entire range of turbine operating conditions, including duct firing, and over the entire range of ambient conditions). Upon conclusion of this three-year demonstration program, if the District determines that the owner/operator can reliably and continuously operate while maintaining the Demonstration NOx Limit, the owner/operator shall accept the Demonstration NOx Limit and correspondingly adjusted hourly mass emission limitations in the facility's Permit to Operate. Should the District and the CEC CPM determine that the owner/operator cannot reliably and continuously operate while maintaining the Demonstration NOx Limit, the NOx emission limit in the facility's Permit to Operate shall remain unchanged. [PSD]

Verification: See Condition AQ-59 and its verification.

AQ-39. The emission limits in Conditions AQ-38 shall not apply during any cold startup (which is not to exceed 4.5 hours in duration), hot startup (which is not to exceed 2.0 hours in duration), warm startup (which is not to exceed 2.5 hours in duration), or shutdown (which is not to exceed 1.0 hour in duration). Selective catalytic reduction (SCR), oxidation catalytic reduction, and good combustion practices shall be used whenever the combustion turbines are operating and to the fullest extent practical during startup and shutdown conditions to minimize pollutant emissions. A stack damper shall be utilized as practical during shutdowns to retain heat in the HRSG in order to minimize startup emissions. Startup shall be defined as the period beginning with ignition and lasting until equipment has reached stable operating mode and has achieved operating permit limits. Cold startup means a startup when the CTG has not been in operation during the preceding 48 hours. Hot startup means a startup when the CTG has been in operation during the preceding 8 hours. Warm startup means a startup that is not a hot or cold startup. Shutdown shall be defined as the period beginning with the lowering of equipment from stable operating load with the intention of full shutdown and lasting until fuel flow is completely off and combustion has ceased.

Verification: See Condition AQ-59 and its verification.

AQ-40. Emissions from each gas turbine, duct burner, and associated HRSG shall meet all of the emission limitations listed below per event for each power train in the various startup or shutdown modes defined in Condition AQ-39:

Pollutant	Cold Startup		Warm Startup		Hot Startup		Shutdown		Verification
	GE	W 501 F	GE	W 501 F	GE	W 501 F	GE	W 501 F	
NOx as NO_2 (pound)	215	140	138	123	75	112	38	38	Verified by CEMS
CO (pound)	750	1105	450	1114	425	847	175	175	
VOC (pound)	80	139	150	138	150	114	128	26	Calculated VOC/CO algorithms developed from initial source tests
PM_{10} (pound)	120	120	70	70	50	50	15	15	Calculated with fuel use and source tests
SOx as SO_2	5.6	5.6	3.1	3.1	2.5	2.5	1.24	1.24	

[PSD]

Verification: See Condition AQ-59 and its verification.

AQ-41. The facility total emissions from gas turbine/HRSG power trains and cooling tower including periods of all equipment startups, shutdowns, and operational modes shall not exceed the following limits during any calendar day:

	GE	Westinghouse	Cooling Tower
PM_{10}	657 pounds per day	503 pounds per day	37.5 pounds per day
NOx as NO_2	679 pounds per day	638 pounds per day	
CO	1832 pounds per day	2603 pounds per day	
SOx as SO_2	30 pounds per day	30 pounds per day	
VOC	258 pounds per day	386 pounds per day	
NH_3	307 pounds per day	307 pounds per day	

[PSD]

Verification: See Condition AQ-59 and its verification.

AQ-42. The facility total emissions from both gas turbine/HRSG power trains, and the cooling tower, including periods of all equipment startups, shutdowns, initial commissioning and operational modes, shall not exceed the following ton per year limits during any consecutive twelve-month period:

	GE (2CTGs)	Westinghouse (2CTGs)	Cooling Tower
PM_{10}	167 tons per year	137 tons per year	7 tons per year
NOx as NO_2	144 tons per year	130 tons per year	
CO	268 tons per year	401 tons per year	
SOx as SO_2	10 tons per year	10 tons per year	
VOC	41 tons per year	65 tons per year	

[PSD]

Verification: See Condition AQ-59 and its verification.

AQ-43. The maximum total dissolved solids (TDS) of the cooling tower blowdown water shall not exceed 5000 mg/liter. The owner/operator shall sample and record the TDS content of the cooling tower blowdown water on a weekly basis or at a frequency consistent with that set by the Regional Water Quality Control Board if more stringent. The owner/operator shall maintain a log containing the date, the results of each test, and calculations of the mass emission rate of particulate matter from the cooling tower. [PSD]

Verification: See Condition AQ-59 and its verification.

AQ-44. The PM_{10} emission rate for the wet cooling tower shall not exceed 37.5 pounds per day at a maximum circulation rate not to exceed 125,000 gallons per minute using the following method to determine compliance:

(gallons of drift/minute) x (1 minute/60 seconds) x (3.785 liters/gallon) x (mg PM_{10}/liter) x (1 gram/1000milligrams) = grams PM_{10}/second

(grams PM_{10}/second) x (60 seconds/minute) x (60 minutes/hour) x (1 pound/454 grams) = pounds PM_{10}/hour

(pounds PM_{10}/hour) x (24 hours/day) = pounds PM_{10}/day

[PSD]

Verification: See Condition AQ-59 and its verification.

AQ-45. Cooling towers shall be properly installed and maintained. The wet cooling towers shall be equipped with high efficiency mist eliminators with a minimum guaranteed drift rate of 0.0005%. The owner/operator shall provide drift eliminator vendor's justification and guarantee of the drift rate at least thirty (30) days prior to commencement of construction. [PSD]

Verification: At least thirty (30) days prior to installation, the project owner shall submit to the District and the CPM a copy of the performance guarantee letter from the cooling tower manufacturer.

AQ-46. A maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators. This procedure is to be kept on-site and be available to the District for review and approval. [PSD]

Verification: The project owner shall make the site available for inspection by representatives of the District, ARB, EPA and/or the Commission.

AQ-47. No compounds containing hexavalent chromium shall be added to cooling tower's circulating water. The following information shall be provided:

a. Owner/operator of the tower;
b. Location of the tower;
c. Cooling tower type and materials of construction;
d. A description of the cooling water treatment program chosen, as well as the circulating water monitoring plan.

[Non-PSD]

Verification: At least ninety (90) days before the tower is operated, the project owner shall provide the District, in writing, the information required in Condition AQ-47.

AQ-48. Emission testing for NO2, CO, PM_{10}, VOC, and SO_2 emissions from each HRSG exhaust and emission calculations of the PM_{10} emissions from the cooling tower shall be conducted annually by an independent testing firm(s) in strict compliance with the test methods specified in Condition AQ-51 and the calculation method specified in Condition AQ-44. The cooling tower emission calculations shall be conducted by a licensed Cooling Tower Institute testing firm and shall include an evaluation of the operating efficiency of the drift eliminators in at least two cells. The Air Pollution Control Officer and the CEC CPM may approve the use of the NOx and CO CEMs readings to quantify annual emissions in lieu of emission testing after the first five annual compliance test as provided by Condition AQ-38 if annual relative accuracy procedures, consistent with the EPA Quality Assurance Guidelines, are completed as required by Condition AQ-32 above. Results of all emission testing shall be forwarded to the District and the CEC CPM for compliance verification. An emission testing protocol detailing the methods of sampling and analysis shall be submitted to the District for approval 30 days prior to the initial testing and any subsequent test required under the above

rule, and the District shall be notified at least ten (10) days prior to the actual date of testing so that a District observer can be present. The following parameters shall also be determined during the emission testing:

a. Natural gas consumption SCFH
b. Electricity generated during the test
c. Ammonia injected: lb/scf of natural gas burned; lb/hr
d. Stack exhaust flow rate in dry standard cubic feet per minute
e. Exhaust gas oxygen concentration, in percent
f. Exhaust gas temperature in degrees Fahrenheit
g. Exhaust gas moisture content
h. CO/VOC surrogate ratio.

[PSD]

Verification: Forty five (45) days after testing, the project owner shall provide the District and the CPM a copy of the source test results. All exemption from annual testing shall be requested in writing to the CPM.

AQ-49. Emission testing of NOx, CO, VOC, SO_2, and PM_{10} during periods of cold startup, warm startup, hot startup, and shutdown for each HRSG exhaust shall be conducted at least once every five years commencing with the initial compliance test.

Verification: Forty five (45) days after testing, the project owner shall provide the District and the CPM a copy of the source test results.

AQ-50. At least four sampling ports must be provided on each HRSG exhaust stack (located on the same horizontal plane, 90 degrees apart, and at least two [2] duct diameters downstream, and one-half [½] duct diameters upstream of any flow disturbance) and shall consist of 4-inch female NPT couplings welded to the stack. The couplings shall be supplied with 4-inch pipe plugs. Sampling platforms shall be installed on each stack. The location of the sampling ports and design of the platform must be approved by the District prior to installation.

Verification: At least 120 days before initial operation, the project owner shall submit to the District for approval and the CPM a plan for the installation of stack sampling ports and platforms.

AQ-51. The following test methods shall apply when testing for the specific pollutant is required unless EPA- approved alternative test methods have been authorized by the District:

Particulate Matter	CARB Method 5 (front and back half analysis)
Oxides of Nitrogen	EPA Method 20
Carbon Monoxide	EPA Method 10 or ARB Method 100
Sulfur dioxide	EPA Method 20

Reactive Organic Compounds	EPA Method 18
Ammonia	Bay Area AQMD Method ST-1B
Stack Gas Oxygen	EPA Method 20

[PSD]

Verification: Forty five (45) days after testing, the project owner shall provide the District and the CPM a copy of the source test results. All exemption from annual testing shall be requested in writing to the CPM.

AQ-52. Within 60 days after startup, emission testing of each HRSG exhaust in accordance with methods specified in Condition AQ-51 shall be performed to determine the mass emission rates and concentrations of NOx, CO, VOC, SO_2, and PM_{10} at 100 percent gas turbine load and ambient conditions and under the various startup and shutdown modes defined above in Condition AQ-39. The test results shall be corrected to ISO standard ambient conditions.

In addition, the initial compliance test shall include emission testing for the following chemical compounds using the specified testing methods for purposes of satisfying Condition AQ-9:

a. benzene	CARB Method 410
b. formaldehyde	CARB Method 430
c. acrolein	(Note: The test method for this compound is currently under investigation by CARB and should be verified with the CARB Monitoring & Laboratory Division)

[Non-PSD]

Verification: Forty five (45) days after testing, the project owner shall provide the District and the CPM a copy of the source test results.

AQ-53. The SCR system shall include provisions for continuously monitoring and recording the amount of ammonia injected in pounds per hour, the SCR catalyst inlet temperature, pressure differential across the SCR catalyst, and be equipped with a control module that continuously adjusts the NH3 injection rate to achieve the desired NOx emission level. [PSD]

Verification: At least ninety (90) days prior to the start of rough grading, the project owner shall submit to the District and the CPM for approval the final selection and design details of the gas turbines and associated equipment, including all proposed post combustion control systems.

AQ-54. Within 60 days after initial startup and annually thereafter within thirty (30) days prior to the renewal date of the Permit to Operate, the owner/operator shall conduct District-approved emission testing on each HRSG exhaust to determine compliance with the ammonia slip emission limit of Condition AQ-38. The test shall be in accordance with Bay Area AQMD Method ST-1B.

The emission test shall determine the correlation between the heat input rates of the gas turbine and associated HRSG, SCR system ammonia injection rate, and the corresponding ammonia emission concentration at the HRSG exhaust. The test shall be conducted over the expected operating range of the turbine. Continuing compliance with the ammonia slip emission limit of Condition AQ-38 shall be demonstrated daily through calculations of corrected ammonia concentrations based upon the source test heat input correlation and continuous records of ammonia injection rates. [PSD]

Verification: Forty five (45) days after testing, the project owner shall provide the District and the CPM a copy of the source test results.

AQ-55. The selective catalytic reduction (SCR) system shall be activated and ammonia shall be injected whenever the SCR has reached or exceeded 500^{o}F except for periods of equipment malfunction. Except during periods of startup, shutdown, and malfunction, ammonia slip shall not exceed 5 ppmvd at 15% O_2. [PSD]

Verification: See Condition AQ-59 and its verification.

AQ-56. To demonstrate compliance with the mass emission limitations for NOx, CO, PM10, SOx, VOC, and NH 3 stated in conditions stated in Conditions AQ-38, 40, 41, and 42 above, the owner/operator shall calculate and record the hourly, daily, and year-to-date mass emissions (including initial commissioning and startup and shutdown emissions) from each power train using CEM emission data (for NOx and CO) and emission factors derived from the most recent annual emission test (for PM10, VOC, NH3 and SOX). The owner/operator shall use the actual heat input rates, actual gas turbine startup times, actual gas turbine shutdown times, and CEC and District-approved emission factors developed during the emission testing required by Conditions AQ-52 and 54 to calculate these emissions.

The daily emissions from the cooling tower shall be calculated using the method specified in Condition AQ-44. [PSD]

Verification: See Condition AQ-59 and its verification.

AQ-57. The duct burners shall not be operated unless the associated combustion gas turbines, oxidation catalyst, and SCR system is in operation.

Verification: See Condition AQ-59 and its verification.

AQ-58. Exhaust stack heights of the HRSG's shall not exceed 150 feet above grade level at the stack base.

Verification: At least 45 days prior to the release to the manufacturer of the emission stack's "approved for construction" drawings, the project owner shall submit the drawings to the District and the CPM for approval.

AQ-59. Monthly emission reports shall be submitted by the 15th of the month following data recording and shall include:

a. all periods 3 minutes and longer in duration when opacity from either HRSG exhaust stack or any oil mist eliminator exceeds the specified limits and the reason for the excursion;
b. all periods when NOx, CO, VOC, PM_{10}, SOx, or NH_3 emission from the exhaust stacks exceed the specified limits and the reason for the excursion;
c. all periods the NOx, or CO CEMs for the HRSGs exhaust were not functioning and the reasons for the same;
d. documentation of the quarterly calibrations of the monitoring devices required in Condition AQ-32 and a report of corrective maintenance required as a result of the calibrations;
e. documentation of daily and monthly emissions of PM10, NOx, CO, SOx, and VOC from the HRSG exhausts and the cooling tower using the methods specified in Conditions AQ-44 and 56;
f. documentation of monthly natural gas fuel consumption for the gas turbines and duct burners;
g. documentation of fuel sulfur content through monthly reports from natural gas supplier;
h. documentation of the date and times when the temperature in the SCR is less than $500^{o}F$ or less than the design temperature of the catalyst;
i. documentation of total operation time, date and time at the beginning and end of each startup/shutdown period, hours in cold startup, hours in warm startup, hours in hot startup, and hours in shutdown periods for each power train;
j. documentation of quantity of electricity generated on a daily basis and total for the month;
k. documentation of corrective action taken to correct each event of malfunctioning operating or emission control equipment or any condition causing excessive emissions;
l. if no permit limitations were exceeded, the report must so state.

[PSD]

Verification: The project owner shall submit to the District and the CPM the above information for the preceding calendar month by the 15th of the following month. This information shall be maintained on site for a minimum of five (5) years and shall be provided to District, EPA and CEC personnel on request.

AQ-60. Drawings and design details of the continuous emission monitoring equipment, data acquisition systems, SCR system, and oxidation catalyst shall be submitted to the District for approval prior to purchasing such equipment. [PSD]

Verification: At least ninety (90) days prior to the start of rough grading, the project owner shall submit to the District and the CPM for approval the final selection and design details of the gas turbines and associated equipment, including all proposed post combustion control systems.

AQ-61. Fugitive dust emissions from unpaved roads or any other area without vegetative cover shall be controlled at all times such that a violation of an ambient air standard or a public nuisance is not created at any point beyond the plant property line. [PSD]

Verification: See verification for Condition AQ-29.

AQ-62. Solid wastes from the softener filter press and the crystallizer filter press shall be removed from the site continuously or stored in containers having a cover. All solid wastes from the subject presses shall be transported offsite in a wet condition in covered containers at all times unless transported in dry form in a totally sealed container. It shall be the responsibility of the facility owner/operator to insure that any and all contracts or company carriers adhere to this condition. [Non-PSD]

Verification: See Condition WASTE-3.

NOISE

Supplemental Testimony of Steve Baker

INTRODUCTION

The Three Mountain Power Project (TMPP) was originally configured to employ an evaporative (wet) cooling tower system (TMP 1999a). The applicant subsequently filed a Detailed Mitigation Plan (TMP 2000a) that proposes to utilize instead a hybrid wet-dry cooling system. While significantly reducing plant water consumption, the hybrid cooling system will add numerous electric motor-driven fans to the project, thus potentially increasing project noise impacts.

The applicable LORS remain the same as enumerated in Energy Commission staff's previous testimony. The significant LORS is the Noise Element of the Shasta County General Plan. In summary, this Noise Element limits the noise from a new stationary source to no more than 50 dBA L_{eq} measured 100 feet from the nearest sensitive receptor during nighttime hours.

BACKGROUND

The applicant cited an ambient noise survey in its application (TMP 1999a, AFC § 6.4.2.2, Table 6.4-4) that identified background (L_{90}) noise levels at the nearest sensitive receptor, the Hathaway residence on Black Ranch Road, as low as 40 dBA. The noise regime at this residence is heavily influenced by traffic on Black Ranch Road and Highway 299.[1] Where traffic noise dominates, it is customary to examine not the single lowest background (L_{90}) level, but the average background level throughout the nighttime hours. Energy Commission staff has taken this approach in this analysis, employing the average background noise level, or 42.8 dBA, in place of the lowest figure.

The applicant modeled expected noise emissions from the original project, and concluded that the noise level due to the project, measured at the nearest receptor, would be 53.8 dBA CNEL, which is equivalent to approximately 47.8 dBA L_{eq} (TMP 1999a, AFC Table 6.4-10). Added to the 42.8 dBA average background noise level at the receptor, this sums to 48.8 dBA, which is 6 dBA higher than the background level. Energy Commission staff normally considers an increase of 5 dBA as an impact requiring scrutiny to determine whether it is a significant adverse environmental impact. However, the noise regime in this neighborhood is unusual, exhibiting nighttime background noise levels greater than daytime (TMP 1999a, AFC Figure 6.4-3b). This suggests that an increase of 6 dBA over existing nighttime background noise levels may not present a significant adverse impact.

In addition, since the predicted project noise level at the sensitive receptor does not exceed 50 dBA, the applicant concluded that the project will comply with the applicable LORS.

[1] Documented in the AFC (TMP 1999a, § 6.4.2.2, p. 6.4-15), the applicant's Noise Impact Analysis Report (TMP 2000b, § 3.0), and Brown-Buntin Associates' noise monitoring (Attachment 1).

Based on this analysis, Energy Commission staff agreed in earlier testimony (CEC 2000a, FSA p. 135) with the AFC that, if project noise at the nearest receptor, the Hathaway residence, did not exceed 48 dBA L_{eq}, then it would comply with LORS and would not present a significant adverse noise impact. Staff attempted to ensure this in its proposed Condition of Certification NOISE-4, but inadvertently specified a noise limit of 50 dBA (CEC 2000a, pages 141-142).

PROJECT MODIFICATIONS — TMP'S DETAILED MITIGATION PLAN

After deciding to incorporate a hybrid wet-dry cooling system into the project, the applicant filed its Detailed Mitigation Plan (TMP 2000a), which addressed noise impacts in summary fashion. In preparing this document, applicant commissioned a new ambient noise survey. This survey characterized the background noise level at the nearest sensitive receptor (again, the Hathaway residence) as approximately 46 to 47 dBA based on a 25-hour average (TMP 2000a, Table 3.5-1). Note that this is significantly higher than the 42.8 dBA reported in the AFC.

The Detailed Mitigation Plan characterizes the noise level due to the power plant, measured at the sensitive receptor, as 50 dBA (TMP 2000a, Table 3.5-4). Note that this is approximately 2 dBA higher than that predicted in the AFC.

The applicant concludes that the project will comply with the applicable LORS by not creating noise at the nearest sensitive receptor greater than 50 dBA, and will not raise ambient noise levels at the nearest sensitive receptor by more than 5 dBA. Therefore, the applicant concludes that no additional mitigation is required (TMP 2000a, page 3-31; § 3.5.7).

STAFF'S REVISED TESTIMONY AND TMP'S NOISE IMPACT ANALYSIS REPORT

In its revised testimony (CEC 2000b), Energy Commission staff agreed with the applicant's summary presentation in the Detailed Mitigation Plan. Subsequent to the Detailed Mitigation Plan, the applicant filed a Noise Impact Analysis Report (NIAR) (TMP 2000b), which was intended to update the 1998 noise study performed for the AFC, and which supports the Noise portion of the Detailed Mitigation Plan.

The NIAR describes ambient noise monitoring at the Hathaway residence, in which the noise monitoring instrument was placed 100 feet from the centerline of Black Ranch Road (TMP 2000b, § 3.1). Results showed background (L_{90}) noise levels ranging from 38 to 52 dBA (TMP 2000b, Table 2), and averaging around 46 or 47 dBA. This significant increase in background noise levels caused Energy Commission staff to question the placement of the instrument near the road, on the side of the residence away from the power plant. This placement of the instrument would tend to maximize traffic noise in an otherwise quiet environment. Staff thus decided to perform additional monitoring, using a monitoring instrument placement

in accordance with Shasta County requirements, that is, 100 feet from the residence, in the direction of the noise source (the TMPP).

The NIAR predicts that project noise at the nearest sensitive receptor will be 50 dBA L_{eq}, and concludes that project noise at the nearest sensitive receptor will comply with the applicable LORS, and will not increase the ambient noise level by more than 5 dBA.

A SECOND LOOK — STAFF'S INDEPENDENT NOISE MONITORING

Questioning the high ambient noise levels reported in the applicant's NIAR, Energy Commission staff assigned an expert noise consultant to perform an independent ambient noise survey. Brown-Buntin Associates, Inc. (BBA) measured ambient noise levels at a location 100 feet from the Hathaway residence, on the east side of the residence (the side toward the power plant), for a period of 37 hours.[2] The results of this measurement are presented in BBA's report (Attachment 1). Background (L_{90}) noise levels at the Hathaway residence range as low as the mid-30s, and the 24-hour average is from 41 to 42 dBA. This corresponds closely with the 42.8 dBA average L_{90} reported in the original (pre-dry cooling) AFC.

ENVIRONMENTAL NOISE IMPACTS

If the project produces noise levels at the Hathaway residence of 50 dBA L_{eq}, as proposed in the Detailed Mitigation Plan, the resulting noise level at the nearest sensitive receptor would be 42 dBA plus 50 dBA, or 51 dBA. This is an increase over background noise levels of 9 dBA, which in staff's view represents a significant adverse environmental impact. If the project noise, at the receptor, is only 48 dBA, as proposed in the original (pre-dry cooling) AFC, the resulting noise level would be 42 dBA plus 48 dBA, or 49 dBA. This is an increase of 7 dBA, also a potentially significant adverse impact.

However, the ambient noise level at this residence is actually lower during the daytime than at night.[3] The BBA noise survey shows an average nighttime background noise levels around 43 dBA. Adding 48 dBA to this yields 49 dBA, an increase of 6 dBA over the background. This does not appear to present a significant adverse impact, in light of the fact that the noise regime is heavily influenced by traffic noise. The 48 dBA level would be in compliance with the applicable LORS, the Shasta County Noise Element.

[2] Additionally, BBA measured noise levels on the existing power plant site, including at a point in the southeast corner, from which the applicant had measured noise levels for the AFC.

[3] Nighttime is generally regarded as the time when people are most sensitive to noise. Please refer to staff's Final Staff Assessment, **Noise: Appendix A** (CEC 2000a, p. 147).

CONCLUSIONS AND RECOMMENDATIONS

ONE APPROACH

Energy Commission staff concludes that, if the project presents noise levels at the Hathaway residence no greater than 48 dBA L_{eq}, the project would not present a significant adverse noise impact, and would comply with applicable LORS. Mitigation measures that would allow this noise level to be achieved would include designing the TMPP to produce less noise, retrofitting the existing Burney Mountain Power Plant to produce less noise, or a combination of the two.

If this approach is adopted, staff recommends that proposed Condition of Certification NOISE-4 from staff's FSA (CEC 2000a, pp. 141-142) be modified as follows and adopted as part of the Commission Decision:

NOISE-4 Upon the TMPP first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall be performed when the Burney Mountain Power Plant is also operating at or near full load, and shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a dominant source of noise that draws complaints. Steam relief valves shall be adequately muffled to preclude noise that draws complaints. The noise contributed by the TMPP operation at 100 feet from the nearest residence shall not exceed ~~50~~48 dBA L_{eq} (night) under normal operating conditions including startups and shutdowns. If the results from the survey indicate that power plant noise levels are in excess of ~~50~~48 dBA L_{eq} (night) at 100 feet from the nearest residence, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit. The mitigation measures (to be employed as required) may include (but not be limited to):

1. Provide standard outdoor/weather enclosures for the combustion turbine generator packages.
2. Provide air inlet silencers for the combustion turbines.

Protocol: The measurement of power plant noise for purposes of demonstrating compliance with this Condition may alternatively be made at an acceptable location closer to the plant (e.g. 400 to 1,000 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the nearest sensitive receptor. However, notwithstanding the use of this alternative method for determining the noise level, the character of plant noise shall be evaluated at the nearest sensitive receptor to determine the presence of pure tones or other dominant sources of plant noise.

Verification: Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to Shasta County and the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

AN ALTERNATIVE APPROACH

In light of the fact that there is only one sensitive receptor very close to the project site, and all other sensitive receptors are farther away, it would be acceptable to allow the project to create noise levels at the Hathaway residence of 50 dBA L_{eq} if the impacts on the residence itself were mitigated.[4] Such mitigation could consist of insulating the house, and installing multi-pane windows and an air conditioning system. If this approach were taken, noise impacts at the Hathaway residence would be less than significant, noise levels at more distant receptors would present no significant adverse impacts, and applicable LORS would be complied with.

If this approach is taken, staff recommends that proposed Condition of Certification NOISE-4 be modified as follows and adopted as part of the Commission Decision:

NOISE-4 Upon the TMPP first achieving an output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall be performed when the Burney Mountain Power Plant is also operating at or near full load, and shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a dominant source of noise that draws complaints. Steam relief valves shall be adequately muffled to preclude noise that draws complaints. The noise contributed by the TMPP operation at 100 feet from the nearest residence shall not exceed 50 dBA L_{eq} (night) under normal operating conditions including startups and shutdowns. If the results from the survey indicate that power plant noise levels are in excess of 50 dBA L_{eq} (night) at 100 feet from the nearest residence, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit. The mitigation measures (to be employed as required) may include (but not be limited to):

1. Provide standard outdoor/weather enclosures for the combustion turbine generator packages.
2. Provide air inlet silencers for the combustion turbines.

[4] Energy Commission staff has recommended this approach in the Metcalf Energy Center case (99-AFC-3).

The measurement of power plant noise for purposes of demonstrating compliance with this Condition may alternatively be made at an acceptable location closer to the plant (e.g. 400 to 1,000 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the nearest sensitive receptor. However, notwithstanding the use of this alternative method for determining the noise level, the character of plant noise shall be evaluated at the nearest sensitive receptor to determine the presence of pure tones or other dominant sources of plant noise.

Verification: Within 30 days after completing the survey, the project owner shall submit a summary report of the survey to Shasta County and the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 30 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

REFERENCES

CEC (California Energy Commission). 2000 a. Final Staff Assessment, Three Mountain Power Project (99-AFC-2), dated January 2000.

CEC (California Energy Commission). 2000 b. Revised Noise Testimony, Three Mountain Power Project (99-AFC-2), dated November 2000.

TMP (Three Mountain Power, LLC). 1999 a. Application for Certification, Three Mountain Power Project (99-AFC-2). Submitted to the California Energy Commission, March 3, 1999.

TMP (Three Mountain Power, LLC). 2000 a. Detailed Mitigation Plan, Three Mountain Power Project (99-AFC-2). Submitted to the California Energy Commission, August 21, 2000.

TMP (Three Mountain Power, LLC). 2000 b. Revised Noise Testimony, Three Mountain Power Project (99-AFC-2). Prepared by URS, dated November 17, 2000.

Attachment 1
Brown-Buntin Associates, Inc.
December 5, 2000

0-277

Field Notes
December 3-5, 2000
Three Mountain Power Plant
Burney, CA
Brown-Buntin Associates, Inc. (BBA)

Monitor 1- Located at the Hathaway property. Approximately 100' east of the mobile home, between the mobile home and the power plant. Traffic on SR 299 and Black Ranch Road is audible and is part of the ambient noise. The operations at the power plant are audible and distinguishable from other ambient noise.

Monitor 2- Located at the master bedroom balcony of the Murray home. The site has direct view of the power plant smoke stack. There are two creeks beyond the backyard which can flood, thus making the view similar to that of a lake or pond. Traffic on SR 299, Vedder Road, and Black Ranch Road is audible. The operations at the power plant are audible and distinguishable from the ambient noise.

Monitor 3- Located on the SE area of the project site. It has full view of the power plant facility. Ambient noise sources consist of traffic on SR 299 and Black Ranch Road. The monitoring unit was set to run for at least 25 hours. Due to an improper fitting of the external power source, there was a power failure and the meter ran only for 9 hours.

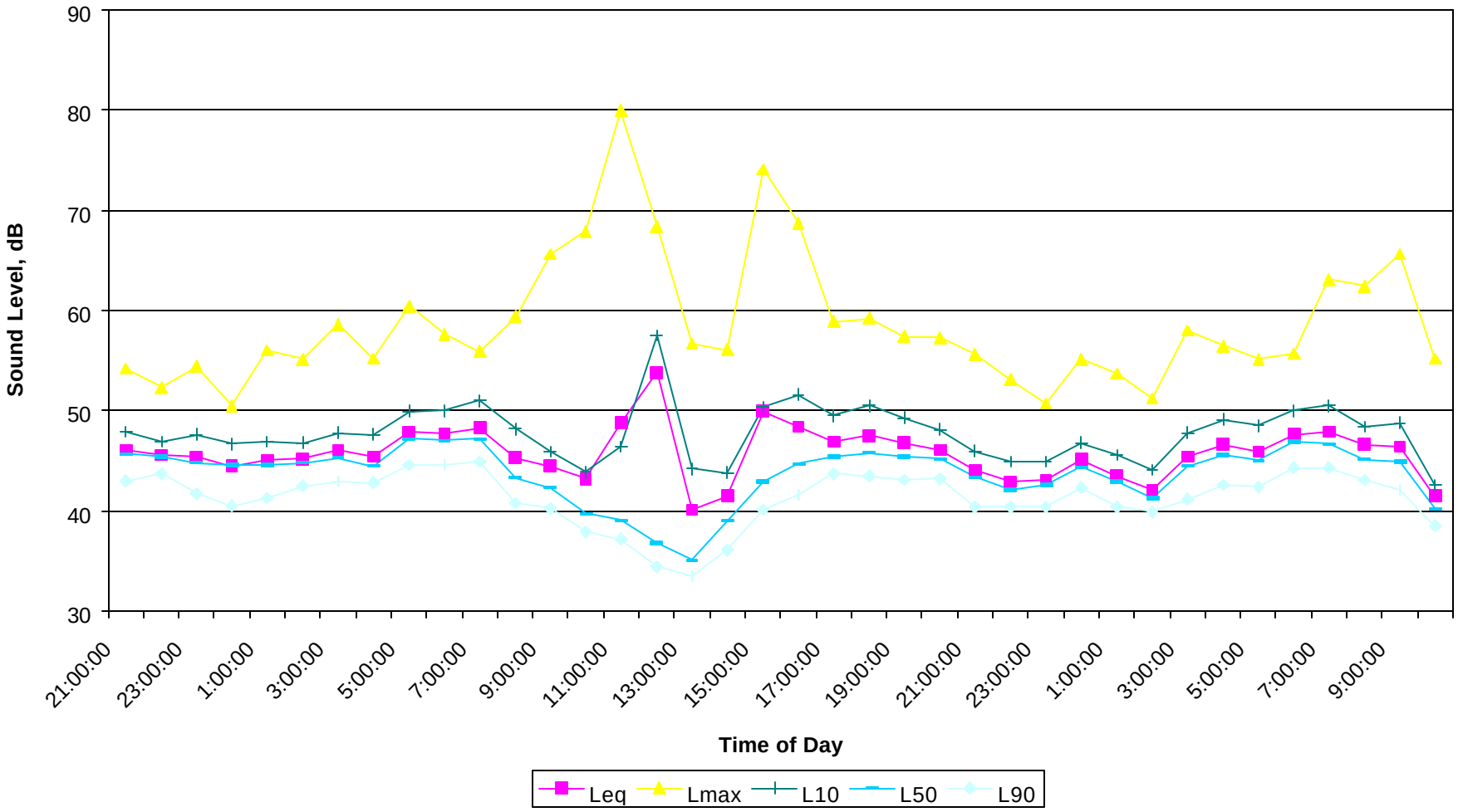
Short-Term noise measurements- Short-term noise level measurements were made along the east property line of the power plant during daytime and nighttime. Daytime measurements were made adjacent to five light poles along the east property line. Nighttime measurements were made at Site P1, which is farthest from the plant. Site P4 is adjacent to the exhaust stack. P5 is north of P4. The other sites are by the three light poles south of P4.

Side notes- Noise level measurements vary with atmospheric conditions. Referring to the short-term noise measurements, P1 and P1N are farthest from the plant operations. The data indicate that the lowest sound level at nighttime is higher than the lowest sound level at daytime.

Sound Level Measurement Results											
Hathaway Residence											
Date	Time	Duration	Sound Level, dBA								
			Leq	Lmax	Lmin	L(2)	L(8)	L(10)	L(25)	L(50)	L(90)
03Dec 00	21:00:00	3600	46.1	54.2	41.1	50.3	48.3	47.9	46.8	45.7	43
03Dec 00	22:00:00	3600	45.6	52.3	41.4	48.6	47.1	46.9	46.2	45.4	43.7
03Dec 00	23:00:00	3600	45.4	54.4	38.6	50.4	47.8	47.6	46.1	44.8	41.7
04Dec 00	0:00:00	3600	44.5	50.5	37.5	47.7	46.8	46.7	45.8	44.6	40.5
04Dec 00	1:00:00	3600	45	56	39.7	49.9	47.1	46.9	45.8	44.6	41.3
04Dec 00	2:00:00	3600	45.2	55.1	40.2	48.7	46.9	46.8	45.8	44.8	42.5
04Dec 00	3:00:00	3600	46.1	58.6	40.8	50.9	48.4	47.8	46.1	45.3	42.9
04Dec 00	4:00:00	3600	45.4	55.2	41.6	49.9	48	47.6	45.8	44.5	42.8
04Dec 00	5:00:00	3600	47.9	60.4	40.8	52.6	50.3	49.9	48.5	47.2	44.6
04Dec 00	6:00:00	3600	47.7	57.6	42.2	52.4	50.5	50	48.3	47	44.6
04Dec 00	7:00:00	3600	48.3	55.9	42.7	53.4	51.5	51	49	47.2	44.9
04Dec 00	8:00:00	3600	45.3	59.4	38.3	51.9	48.7	48.2	45.4	43.3	40.8
04Dec 00	9:00:00	3600	44.5	65.6	38.8	51.9	46.7	45.9	43.8	42.3	40.2
04Dec 00	10:00:00	3600	43.2	67.9	35.4	51.5	45.1	43.9	41.2	39.7	37.9
04Dec 00	11:00:00	3600	48.8	79.9	35.7	54.9	47.9	46.4	41.1	39.1	37.2
04Dec 00	12:00:00	3600	53.8	68.4	33.1	64.9	59.6	57.5	45.4	36.8	34.4
04Dec 00	13:00:00	3600	40.1	56.7	32.6	49.4	44.7	44.2	36.8	35.1	33.5
04Dec 00	14:00:00	3600	41.5	56.1	33.6	49.6	44.6	43.8	41	39	36.1
04Dec 00	15:00:00	3600	49.9	74.1	37.4	57.8	51.6	50.4	45.5	42.9	40.1
04Dec 00	16:00:00	3600	48.4	68.7	38.8	56.2	52.4	51.6	47.5	44.7	41.6
04Dec 00	17:00:00	3600	46.9	58.9	41.7	53.3	49.9	49.5	47.1	45.4	43.7
04Dec 00	18:00:00	3600	47.5	59.2	40.8	53.4	51.1	50.5	47.9	45.8	43.5
04Dec 00	19:00:00	3600	46.8	57.4	41.1	52.6	49.7	49.3	47.2	45.4	43.1
04Dec 00	20:00:00	3600	46.1	57.3	41.4	50.9	48.5	48.1	46.6	45.2	43.2
04Dec 00	21:00:00	3600	44.1	55.6	38.9	48.9	46.6	46	44.7	43.4	40.4
04Dec 00	22:00:00	3600	42.9	53.1	39.4	47.3	45.3	44.9	43.3	42.1	40.4
04Dec 00	23:00:00	3600	43.1	50.7	39.3	46.8	45.3	44.9	43.8	42.6	40.4
05Dec 00	0:00:00	3600	45.1	55.1	40.6	49.9	47.2	46.8	45.5	44.4	42.3
05Dec 00	1:00:00	3600	43.5	53.7	37.7	47	45.8	45.6	44.5	42.9	40.4
05Dec 00	2:00:00	3600	42.1	51.2	38.9	46.4	44.5	44.1	42.6	41.3	39.9
05Dec 00	3:00:00	3600	45.4	58	39.1	50.1	48	47.8	46.3	44.5	41.2
05Dec 00	4:00:00	3600	46.6	56.5	40.4	52.5	49.7	49.1	47.2	45.6	42.6
05Dec 00	5:00:00	3600	45.9	55.1	40.3	51	48.9	48.5	46.7	45	42.4
05Dec 00	6:00:00	3600	47.6	55.7	42.8	52	50.3	50	48.4	46.9	44.3

Sound Level Measurement Results											
Hathaway Residence											
Date	Time	Duration	Sound Level, dBA								
			Leq	Lmax	Lmin	L(2)	L(8)	L(10)	L(25)	L(50)	L(90)
05Dec 00	7:00:00	3600	47.9	63.1	41.1	52.8	50.8	50.5	48.7	46.7	44.3
05Dec 00	8:00:00	3600	46.6	62.4	40.8	52.4	48.9	48.4	46.6	45.1	43.1
05Dec 00	9:00:00	3600	46.4	65.6	40.3	52	49.3	48.8	46.8	44.9	42.1
05Dec 00	10:00:00	3600	41.5	55.2	36.9	48.6	43.1	42.6	41.2	40.2	38.5

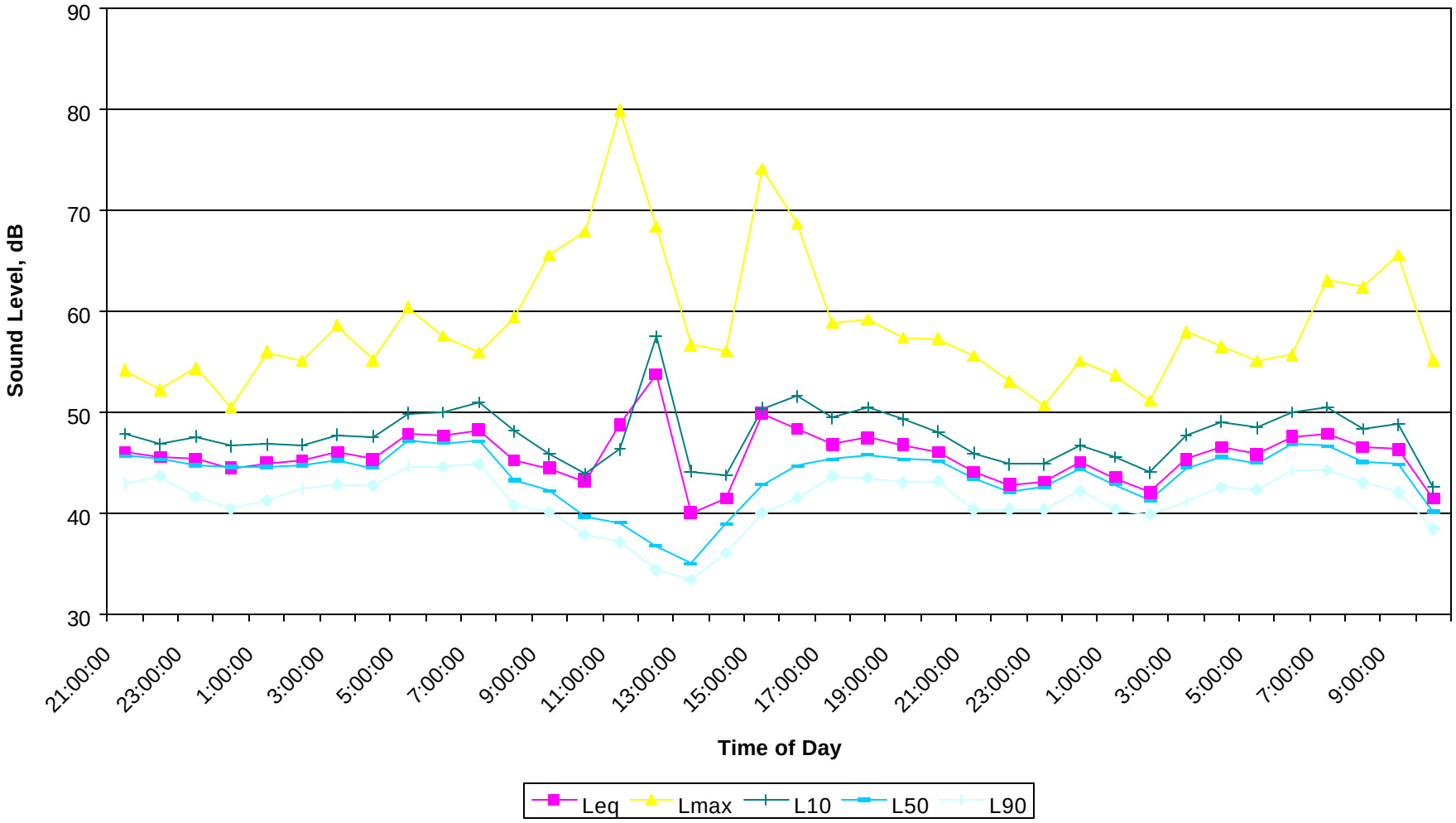
Measured Noise Levels
Hathaway Residence
December 3-5, 2000



Sound Level Measurement Results											
Murray Residence											
Date	Time	Duration	Sound Level, dBA								
			Leq	Lmax	Lmin	L(2)	L(8)	L(10)	L(25)	L(50)	L(90)
03Dec 00	21:00:00	3600	40.4	46.8	35	45	43	42.6	41	39.8	37.3
03Dec 00	22:00:00	3600	40.3	51.5	35.3	43.6	42.2	41.9	40.9	39.9	38.2
03Dec 00	23:00:00	3600	41.5	51.3	37.7	44.2	43.3	43	42.3	41.2	39.5
04Dec 00	0:00:00	3600	41.1	46.4	38	43.9	42.9	42.7	41.8	40.9	39.3
04Dec 00	1:00:00	3600	41.2	50.4	37.1	44.4	43.1	42.9	42	41	38.6
04Dec 00	2:00:00	3600	39.7	48.1	35.9	42.6	41	40.9	40.2	39.3	37.8
04Dec 00	3:00:00	3600	40.5	50.1	37.4	43.6	42.4	42.1	41	40.2	38.3
04Dec 00	4:00:00	3600	40.6	46.9	36.9	42.9	42.3	42.1	41.4	40.4	38.2
04Dec 00	5:00:00	3600	43	50.5	40.4	45.6	44.6	44.5	43.6	42.7	41.2
04Dec 00	6:00:00	3600	43.2	47.9	39.3	45.8	44.9	44.8	43.9	42.9	41.3
04Dec 00	7:00:00	3600	43.1	49.2	36.9	46.9	46	45.8	44.5	42.6	39.2
04Dec 00	8:00:00	3600	44.7	50.1	41.4	47	46.3	46	45.4	44.5	43.1
04Dec 00	9:00:00	3600	44.8	53.1	38.9	48.8	46.9	46.7	45.6	44.4	41.6
04Dec 00	10:00:00	3600	39.2	49.5	33	43.9	42.5	42.1	39.9	38.2	35.1
04Dec 00	11:00:00	3600	53.4	75.6	32.6	64.3	56.9	54	40.7	37.8	34.3
04Dec 00	12:00:00	3600	35.5	44.7	30.8	40.7	37.9	37.6	35.8	34.6	32.7
04Dec 00	13:00:00	3600	35.5	48.5	29.8	43.6	39.1	38.3	34.9	32.7	31
04Dec 00	14:00:00	3600	35.3	45.3	30.1	40	38	37.7	36.1	34.4	31.5
04Dec 00	15:00:00	3600	38.4	49.2	33.3	43.4	41.4	41	38.9	37.3	35.3
04Dec 00	16:00:00	3600	41.2	47.6	33.8	45.8	44.2	43.8	42.2	40.5	37.1
04Dec 00	17:00:00	3600	39.1	48.9	32.8	44.6	42.5	42	39.6	37.7	35.1
04Dec 00	18:00:00	3600	41.5	52	35.5	45.3	43.8	43.5	42.2	40.8	37.7
04Dec 00	19:00:00	3600	41.3	49.4	37.8	45.8	44.1	43.7	41.7	40.5	39
04Dec 00	20:00:00	3600	40.3	49	36.4	44.4	42.2	41.9	40.8	39.6	38.2
04Dec 00	21:00:00	3600	39.2	46.4	35.4	43.1	41.2	40.9	39.9	38.6	36.5
04Dec 00	22:00:00	3600	38.1	50.4	34.6	42	39.9	39.7	38.7	37.6	35.7
04Dec 00	23:00:00	3600	37.3	46.7	33.7	41.3	39	38.8	37.7	36.7	35
05Dec 00	0:00:00	3600	39.4	50.1	34.1	42.8	41.5	41.2	40.2	39.1	36.7
05Dec 00	1:00:00	3600	38.9	51.1	34.4	42.4	41.2	40.9	39.9	38.6	36.2
05Dec 00	2:00:00	3600	39.1	46.3	34.4	43.1	41.2	40.9	39.8	38.7	36.3
05Dec 00	3:00:00	3600	38.3	47.2	32.9	41.6	40.5	40.3	39.3	38	35
05Dec 00	4:00:00	3600	40.1	46.7	34.6	44.1	42.6	42.3	40.9	39.6	37.2
05Dec 00	5:00:00	3600	43.4	56.6	39.3	48	45.4	45	43.8	42.5	40.5

Sound Level Measurement Results											
Murray Residence											
Date	Time	Duration	Sound Level, dBA								
			Leq	Lmax	Lmin	L(2)	L(8)	L(10)	L(25)	L(50)	L(90)
05Dec 00	6:00:00	3600	42.5	46.9	38.2	45	44.1	43.9	43.1	42.4	40.6
05Dec 00	7:00:00	3600	44.2	52.2	39.3	47.1	46	45.8	44.9	43.9	42.1
05Dec 00	8:00:00	3600	44.6	55.7	40.9	47.7	46.4	46.1	45.1	44.2	42.5
05Dec 00	9:00:00	3600	42.7	59.4	37.9	45.8	44.5	44.3	43.4	42.3	40.3
05Dec 00	10:00:00	3600	40.8	51.1	35.7	44.6	43.2	42.9	41.6	40.2	37.6

Measured Noise Levels
Hathaway Residence
December 3-5, 2000



CORPORATE RÉSUMÉ

Brown-Buntin Associates, Inc.

Brown-Buntin Associates, Inc. (BBA) is an acoustical consulting firm offering comprehensive services in environmental noise assessment and control. Since its founding in 1981, BBA grew from a small, regional business into a firm that provides services across the country. The firm=s capabilities expanded to include a complete range of acoustical services. Its innovative methods of performing noise measurements and analysis, and solving control problems earned the firm prestige and distinction. BBA is now an established leader and educator in environmental noise issues.

Principals and Staff

BBA principals and professional staff have earned membership in the Acoustical Society of America (ASA) and the Institute of Noise Control Engineering (INCE). They enjoy nationwide recognition for their expertise and experience in the field of environmental noise assessment and control, presenting papers at industry conferences and conducting seminars covering a wide range of noise-related issues.

Public and Private Sector Experience

The BBA staff possesses extensive experience in both the private and public sectors. Their services are sought by public administrators, civil engineers, planners, architects, real estate developers and management personnel of private enterprises.

Federal, state and local laws require noise studies. The California Environmental Quality Act (CEQA), and the National Environmental Policy Act (NEPA) have specific provisions for noise assessment. Local government General Plans have specific requirements related to noise. BBA helps clients navigate through this forest of regulations.

BBA Expertise

BBA has helped airports, raceways, and business of all kinds not only control the noise they generate, but also to communicate effectively and work constructively with the citizens who live near the sites.

Depth of experience in serving clients with such in a unique position. BBA expertise lies in applying technical knowledge to the environmental noise problems of the general public.

BBA understands your needs and can help bring divergent interests to common solutions.

Acceptance of BBA Studies

The principals and staff of the firm are aware of the need for objective studies and clear, unbiased reports. BBA recognizes the need to work closely with each client so that individual concerns are met and clients receive maximum benefit from our services. BBA goals are to deliver competent and highly personalized services while providing the credibility and technical support required for complex decisions and legal issues. BBA=s position as an independent consultant enables the firm to accomplish this task.

BBA highly values the confidence expressed in the professional integrity of its reports by government agencies who are responsible for their review and approval. This trust and demonstrated ability to work with city and county staffs furthers the acceptance of BBA acoustical studies. The firm is committed to maintaining this high standard of performance.

State of the Art Equipment

BBA utilizes state-of-the-art sound measurement and analysis equipment, coupled with computer data management and modeling capabilities, including computer aided drafting (CAD). Our instrumentation includes Bruel and Kjaer (B&K) and Larson-Davis Laboratories precision (Type 1) field and laboratory instruments.

JIM BUNTIN

Principal
Brown-Buntin Associates, Inc.

EXPERIENCE:

Mr. Buntin is a founding partner of Brown-Buntin Associates, Inc. (BBA), and manages the firm's Northern California office. He has performed a wide variety of acoustical studies, including analyses of airport/aircraft noise, traffic noise, industrial noise sources and architectural acoustics. His technical skills include aviation, industrial and traffic noise assessment, and development and interpretation of noise exposure criteria. He was awarded Board Certification by the Institute of Noise Control Engineering in 1985.

Mr. Buntin began his involvement in noise assessment in 1972 in the public sector. In 1980, Mr. Buntin was Director of the Center for a Quiet Environment at U.C. Berkeley, where he provided technical assistance and training in environmental noise assessment in the western United States.

Since the founding of Brown-Buntin Associates, Inc. in 1981, Mr. Buntin has managed hundreds of noise analyses, including:

- Airport noise studies including FAR Part 150 Noise Compatibility Programs, quarterly noise monitoring and ongoing technical support , environmental documents, and noise contour preparation.
- Environmental noise assessments for project EIR/EIS's in California and Nevada. Representative projects include the Jamestown Mine, the Bodie Mining Project, the Heavenly Master Plan, Squaw Valley snow making operations and the Special Nevada Report.
- Preparation of Noise Elements of the General Plan for numerous cities and counties in California.
- Industrial pump, fan, motor and engine noise assessments.

PROFESSIONAL AFFILIATIONS:

- Board Certified Member, Institute of Noise Control Engineering.
- Member, Acoustical Society of America.
- Member, Aircraft Noise Subcommittee, National Research Council, Transportation Research Board.
- Member, ASTM Committee E33 (Environmental Acoustics).

PUBLICATIONS AND PRESENTATIONS:

Comparison of Predicted Aircraft Noise Nevels Using INM Versions 4.11 and 5.01, Noise-Con 96, Seattle Washington, September 1996

Modeling of Enhanced Sound Propagation at a California Airport, Inter-Noise 94, Yokohama, Japan, August, 1994.

Use of a Synthesized Aircraft Noise Spectrum for Residential Sound Insulation Evaluation, National Transportation Research Board, 72nd Annual Meeting, January, 1993.

Criteria for Acceptable Aircraft Noise Exposures in Classrooms, Inter-Noise 89, Newport Beach, California, December, 1989.

Criteria for Low Frequency and Infrasound from Wind Energy Farms in Kern County, 112th Meeting of the Acoustical Society of America, Anaheim, California, December, 1986.

Seminars in Environmental Noise Control, California Office of Noise Control Community Noise Conference, Asilomar, California, 1982, 1985, 1987, 1990.

EDUCATION:

- B.A., Zoology, 1968, University of California at Los Angeles.
- Graduate courses in Public Administration, California State University at Bakersfield.
- Graduate courses in environmental noise: University of California , Berkeley, Santa Cruz and San Francisco.

BIOLOGICAL RESOURCES ERRATA

CONDITIONS OF CERTIFICATION

The following conditions should replace the conditions contained the November 20, 2000 Final Staff Assessment Part 3.

DESIGNATED BIOLOGIST

BIO-1 Site modifications including ancillary facilities preparation shall not begin until an Energy Commission CPM approved Designated Biologist is available to be on site.

The Designated Biologist must meet the following minimum qualifications:

1. a Bachelor's Degree in biological sciences, zoology, botany, ecology, or a closely related field;
2. three years of experience in field biology;
3. one year of field experience with biological resources found in or near the project area including the plant and raptor species and wetlands; and
4. an ability to demonstrate to the satisfaction of the CPM the appropriate education and experience for the biological resources tasks that must be addressed during project construction and operation.

If the CPM determines the proposed Designated Biologist to be unacceptable, the project owner shall submit another individual's name and qualifications for consideration. If the approved Designated Biologist needs to be replaced, the project owner shall obtain approval of a new Designated Biologist by submitting to the CPM the name, qualifications, address, and telephone number of the proposed replacement. No disturbance will be allowed in any designated sensitive areas until the CPM approves a new Designated Biologist and the new biologist is on site.

Verification: At least 60 days prior to the start of any site mobilization activities, the project owner shall submit to the CPM for approval, the name, qualifications, address and telephone number of the individual selected by the project owner as the Designated Biologist. If a Designated Biologist is replaced, the information on the proposed replacement, as specified in the condition, must be submitted in writing at least ten working days prior to the termination or release of the preceding Designated Biologist.

BIO-2 The CPM approved Designated Biologist shall perform the following during project construction:

1. advise the project owner's Construction Manager on the implementation of the Biological Resource Conditions of Certification;
2. supervise or conduct surveys, mitigation, daily monitoring and other biological resources compliance efforts, particularly in areas requiring

avoidance or containing sensitive biological resources, such as, wetlands and special status species;
3. prohibit workers and vehicles from entering or disturbing designated sensitive areas or creeks, rivers, and streams; and
4. notify the project owner and the CPM of any non-compliance with any Biological Resources Condition of Certification.

Verification: During project construction, the Designated Biologist shall maintain written records of the tasks described above, and summaries of these records shall be submitted along with the Monthly Compliance Reports to the CPM.

BIO-3 The project owner's Construction Manager shall act on the advice of the Designated Biologist to ensure conformance with the Biological Resources Conditions of Certification.

The project owner's Construction Manager shall halt, if necessary, all construction activities in areas specifically identified by the Designated Biologist as sensitive to assure that potential significant biological resource impacts are avoided.

The Designated Biologist shall:

1. inform the project owner and the Construction Manager when to resume construction, and
2. advise the CPM if any corrective actions are needed or have been instituted.

Verification: Within two (2) working days of a Designated Biologist notification of non-compliance with a Biological Resources condition of certification or a halt of construction, the project owner shall notify the CPM by telephone of the circumstances and actions being taken to resolve the problem or the non-compliance with a condition. For any necessary corrective action taken by the project owner, a determination of success or failure will be made by the CPM within five (5) working days after receipt of notice that corrective action is completed, or the project owner will be notified by the CPM that coordination with other agencies will require additional time before a determination can be made.

BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION & MONITORING PLAN

BIO-4 The project owner shall submit to the CPM for review and approval a copy of the final Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and, once approved, shall implement the measures identified in the plan.

The final BRMIMP shall identify:

1. all Biological Resource Conditions included in the Commission's Final Decision;

2. protocols for conducting botanical, dead bird, and raptor nest surveys along the existing transmission line;
3. provisions for mitigating avian collision, if applicable;
4. a list of all terms and conditions of USFWS biological opinion and any CDFG or USFS requirements or recommendations;
5. a detailed description of measures, Best Management Practices, and take avoidance measures that will be implemented to avoid and/or minimize impacts to sensitive species and reduce habitat disturbance;
6. all locations, on a map of suitable scale, of laydown areas and areas requiring temporary protection and avoidance during construction;
7. aerial photographs, at an appropriate scale, of all pull sites- one set prior to site disturbance and one set after project construction- showing locations of sensitive areas. Include planned timing of aerial photography and a description of why times were chosen;
8. a raptor management plan and re-vegetation plan;
9. duration for each type of monitoring and a description of monitoring methodologies and frequency;
10. performance standards to be used to help decide if/when proposed mitigation is or is not successful;
11. all performance standards and remedial measures to be implemented if performance standards are not met;
12. a discussion of biological resource-related facility closure measures; and;
13. a process for proposing plan modifications to the CPM and appropriate agencies for review and approval.
14.

Verification: At least 45 days prior to start of site mobilization activities, the project owner shall provide the CPM with the final version of the BRMIMP for this project, and the CPM will determine acceptability of the plan. The project owner shall notify the CPM five (5) working days before implementing any CPM approved modifications to the BRMIMP.

Verification: Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval, a written report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which mitigation and monitoring plan items are still outstanding.

WORKER ENVIRONMENTAL AWARENESS PROGRAM

BIO-5 The project owner shall develop and implement a CPM approved Worker Environmental Awareness Program in which each of its employees, as well as employees of contractors and subcontractors who work on the project site or related facilities during construction and operation, are informed about sensitive biological resources associated with the project.

The Worker Environmental Awareness Program must:

1. be developed by the Designated Biologist and consist of an on-site or training center presentation in which supporting written material is made available to all participants;
2. discuss the locations and types of sensitive biological resources on the project site and adjacent areas;
3. present the reasons for protecting these resources;
4. present the meaning of various temporary and permanent habitat protection measures; and
5. identify whom to contact if there are further comments and questions about the material discussed in the program.

The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

Each participant in the on-site Worker Environmental Awareness Program shall sign a statement declaring that the individual understands and shall abide by the guidelines set forth in the program materials. The person administering the program shall also sign each statement.

Verification: At least 60 days prior to the start of site mobilization, the project owner shall provide copies of the Worker Environmental Awareness Program, all supporting materials, and the name and qualifications of the person(s) administering the program to the CPM for approval. The project owner shall state in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. The signed statements for the construction phase shall be kept on file by the project owner and made available for examination by the CPM for a period of at least six (6) months after the start of commercial operation. During project operation, signed statements for active project operational personnel shall be kept on file for the duration of their employment and for six (6) months after their termination.

AGENCY COMPLIANCE

BIO-6 Prior to start of any site mobilization activities, the project owner shall acquire an Incidental Take Statement from U.S. Fish and Wildlife Service and a letter of determination that the Incidental Take Statement is consistent with the California Endangered Species Act from California Department of Fish and Game. Three Mountain Power Project shall implement any terms and conditions of these documents.

Verification: No less than ninety (90) days prior to the start of any site mobilization activities, the project owner shall submit to the CPM a copy of the final Incidental Take Statement from USFWS and a determination letter from CDFG, stating that this Statement is consistent with the California Endangered Species Act . Any terms and conditions stated in the permit and letter shall be incorporated into the final Biological Resources Mitigation Implementation and Monitoring Plan.

BIO-7 Prior to start of any site mobilization activities on Forest Service lands, the project owner shall obtain a letter from Shasta National Forest stating their approval of construction activities that will occur on Forest Service lands and implement any terms and conditions of this document.

Verification: No less than thirty (30) days prior to the start of any site mobilization activities on Forest Service lands, the project owner shall submit to the CPM copies of the letter from the Shasta National Forest and incorporate any terms and conditions into final Biological Resources Mitigation Implementation and Monitoring Plan.

PRECONSTRUCTION SURVEYS

BIO-8 Prior to start of any reconductoring activities, the project owner shall conduct surveys for sensitive plant species during the appropriate blooming period and concomitant surveys for dead birds and raptor nests along the existing transmission line corridor. Locations of sensitive plant populations and wetlands shall be delineated and avoided by construction activities.

Verification: No less than thirty (30) days prior to the start of any reconductoring activities, the project owner shall submit to the CPM a report of results from the plant, bird, and nest surveys. The report shall specify and map locations of sensitive resources and bird fatalities, and discuss avoidance measures and any necessary remedial actions.

GENERAL MITIGATION

BIO-9 The project owner shall implement the following mitigation measures and incorporate these into the BRMIMP.

PROJECT SITE

1. Minimize width of construction corridor to 50 feet for pipelines and 200 feet for the new transmission line corridor.
2. Design and locate staging areas and access/construction roads to disturbed areas whenever possible and at least 100 feet away from areas supporting sensitive species.
3. Construction area boundaries will be clearly delineated by flagging or fencing to minimize disturbance to natural habitat.
4. Control erosion and sedimentation by conducting construction activities during dry periods, and by using silt fences, sandbags, and detention basins.
5. Preserve and, within two weeks, replace topsoil from areas temporarily impacted. Replaced topsoil will be decompacted to a depth of 18 inches. Original grades will be restored with a minimum of 6 inches of topsoil.
6. Re-vegetate linear corridors with native seed mixtures.
7. Restrict traffic to established roads, designated access roads, construction areas, storage areas, staging areas or parking areas.
8. Inspect open trenches for wildlife prior to start of daily construction activities. Any wildlife observed will be allowed to escape on its own. If

necessary, ramps and side exits will be placed in the trench every 0.25 mile.

TRANSMISSION LINE RECONDUCTORING

1. Prohibit the removal or addition of dredge material into any wetlands.
2. Prohibit vehicles from entering any stream, river, or creek bed.
3. Restrict pull site locations to disturbed areas, previously cleared areas such as chaparral or grassland habitats lacking vernal pools, wetlands, or sensitive plant populations.
4. Treat all pull sites with soil stabilizers and native seed treatments to reduce erosion
5. Conduct reconductoring activities only from mid-August through December to avoid the raptor nesting season.
6. Conduct a raptor and waterfowl collision study approved by USFWS.
7. Provide a biological monitor knowledgeable in raptor biology and botany during all times of construction activity.
8. Preserve existing tower nests whenever feasible.

Verification: During project construction, the project owner shall provide monthly compliance reports stating activities completed, mitigation measures implemented, sensitive biological resources areas encountered, raptor nests removed, and any infractions by construction personnel. Within thirty days after completion of the project construction, the project owner shall submit a post-construction compliance report that describes the following details: dates that construction occurred; data concerning success in meeting project mitigation measures; known project effects on any sensitive species encountered during the construction phase; an assessment of the extent and severity of project impacts on all sensitive wildlife habitats; and other appropriate information.

SHASTA CRAYFISH BARRIER STUDY

BIO-10 Prior to the start of any site mobilization, the project owner shall provide payment of $250,000 to the CPM which will be deposited in a state-managed account set up specifically to fund a Shasta crayfish barrier study, as described in Appendix C of the *Recovery Plan for the Shasta Crayfish (Pacifastacus fortis)* (USFWS 1998). Implementation of the study shall be overseen and managed by the CPM.

The study shall be awarded by the CPM, in consultation with U.S. Fish and Wildlife Service, to a research entity that can demonstrate it possesses the experience to successfully implement and complete the study and that has or will have necessary permits required by state and federal laws to conduct the study.

Upon completion of the study, all reports and other final work products shall be delivered to the CPM, U.S. Fish and Wildlife Service, and California Department of Fish and Game and shall be publicly available.

Verification: Within one day prior to the start of any site mobilization, the project owner shall submit to the CPM payment of $250,000 for deposit into a state-managed account set up to fund the Shasta crayfish barrier study. The CPM shall make every effort to have the research entity identified no later than nine months after site mobilization.

AQUATIC AND TERRESTRIAL MOLLUSKS STUDY

BIO-11 Prior to the start of any site mobilization, the project owner shall provide $100,000 to the CPM which will be deposited in a state-managed account set up specifically to fund a study of aquatic and terrestrial mollusks that reside in the Burney Basin area. The study shall focus on distribution, abundance, taxonomy, or life history requirements of aquatic and terrestrial mollusks, including those identified in Biological Resources Table 1.

The scope of work including reporting requirements shall be developed by the CPM in consultation with U.S. Fish and Wildlife Service and U.S. Forest Service. Implementation of the study shall be overseen and managed by the CPM. Upon completion of the study, all reports and other final work products shall be delivered to the CPM, U.S. Fish and Wildlife Service, U.S. Forest Service, and California Department of Fish and Game and shall be publicly available.

Verification: Within one day prior to the start of any site mobilization, the project owner shall submit to the CPM payment of $100,000 for deposit into a state-managed account to fund the mollusk study. The CPM shall make every effort to have the research entity identified no later than nine months after site mobilization.

FACILITY CLOSURE

BIO-12 The project owner will incorporate into the planned permanent or unexpected permanent closure plan measures that address the local biological resources. The biological resource facility closure measures will also be incorporated into the TMPP project BRMIMP.

The planned permanent or unexpected permanent closure plan will require the following biological resource-related mitigation measures:

1. removal of transmission conductors when they are no longer used and useful; and
2. measures to restore wildlife habitat to promote the re-establishment of native plant and wildlife species.
3. measures to remove all toxic and hazardous materials from the site.

Verification: At least 12 months (or a mutually agreed upon time) prior to the commencement of closure activities, the project owner shall address all biological resource-related issues associated with facility closure in a Biological Resources Element. The Biological Resources Element will be incorporated into the Facility

Closure Plan, and include a complete discussion of the local biological resources and proposed facility closure mitigation measures.

STIPULATION BETWEEN THREE MOUNTAIN POWER, LLC AND CALIFORNIA ENERGY COMMISSION STAFF DATED DECEMBER 7, 2000 (Docket No. 99-AFC-2)

This Stipulation is being entered into by and between Three Mountain Power, LLC ("Three Mountain Power"), the applicant in this proceeding, and California Energy Commission Staff ("Staff"), a party to this proceeding, on and as of December 7, 2000.

RECITALS

A. Staff has filed its Final Staff Assessment (Part 3) ("Staff's FSA-Part 3"), which includes Staff's analysis, conclusions and recommended conditions of certification regarding, among other things, the potential environmental impacts of the proposed Three Mountain Power project (the "Project") in the areas of Soils & Water Resources and Biological Resources.

B. Three Mountain Power has filed its Direct Testimony ("TMP's Testimony"), which includes Three Mountain Power's analysis, conclusions and recommended conditions of certification regarding, among other things, the potential environmental impacts of the Project in the areas of Soils & Water Resources and Biological Resources.

C. This Stipulation is intended to clarify and confirm certain areas of agreement between Staff and Three Mountain Power regarding the potential direct impacts and potential cumulative impacts of the Project in the areas of Soils & Water Resources and Biological Resources.

D. This Stipulation also reflects agreement reached between Staff and Three Mountain Power following filing of Staff's FSA-Part 3 and TMP's Testimony regarding the appropriate mitigation for certain potential impacts in the area of Biological Resources, which mitigation includes a Shasta Crayfish barrier study and a study of aquatic and terrestrial mollusks, both of which are described in Exhibit A to this Stipulation.

STIPULATION

Now, therefore, Three Mountain Power and Staff agree as follows:

1. The Project will not result in any significant direct impacts to spring flows or to Burney Falls or significant direct impacts on biological resources.

2. Staff's analysis in FSA-Part 3 indicates that the reduction in spring flow that may result from the Project's water use constitutes a potential significant cumulative impact on biological resources that requires mitigation. Three Mountain Power's analysis in TMP's

Testimony indicates that there will be no significant direct or cumulative impacts resulting from the Project's water use. Both Staff and Three Mountain Power believe that their respective analyses are technically sound; however, both parties agree that there is some inherent uncertainty in any predictive analyses of future hydrological impacts due to the nature of the analyses. Such uncertainty therefore supports a finding that it is appropriate to require funding for mitigation measures that address the overall potential cumulative impact on biological resources.

3. In light of the above circumstances, it is appropriate to provide funding for certain mitigation measures in the area of Biological Resources as described in Exhibit A attached hereto, which mitigation measures address the Project's contribution to any potential cumulative impact on biological resources. This approach to cumulative impact mitigation is recommended by section 15130(a)(3) of the State CEQA Guidelines as a factual basis for determining that a project's contribution to a cumulative impact is not cumulatively considerable and thus is not significant. This mitigation is conservative and appropriate in a situation such as this where there is a possible or uncertain significant cumulative impact.

4. Staff's FSA-Part 3 and TMP's Testimony both recommended mitigation in the area of Biological Resources that would require a Shasta Crayfish barrier study and a study of sensitive aquatic and terrestrial mollusks. However, Staff and Three Mountain Power disagreed on the specific terms of such mitigation in their respective testimony. As specifically described in Exhibit A attached hereto, Staff and Three Mountain Power now agree on the propriety of such mitigation, as well as the specific terms of such mitigation for the potential cumulative impacts of the Project's water use, and agree that no other mitigation is appropriate or necessary to address the potential cumulative impacts of the Project's water use on aquatic biota.

5. Staff's FSA-Part 3 states that aquifer testing and analysis of the results and a requirement for reimbursement for certain impacts to neighboring well owners will ensure that significant Project impacts are mitigated with respect to water supply and neighboring wells. Three Mountain Power's Testimony reached similar conclusions. Based on both Staff's FSA-Part 3 and Three Mountain Power's Testimony, the record before the Commission demonstrates that appropriate mitigation would require aquifer testing and analysis of the results and a requirement for reimbursement for significant impacts to neighboring well owners if such testing indicates that significant impacts have occurred. This mitigation would ensure that there are no significant impacts to neighboring wells resulting from the Project's water use. However, Staff and Three Mountain Power have

not yet agreed on the specific terms and conditions of such mitigation, but now agree to make reasonable efforts to reach such agreement prior to hearings on the Project.

Accepted and agreed:

Three Mountain Power, LLC

By _____
For White & Case LLP
Counsel for Three Mountain Power, LLC

Accepted and agreed:

California Energy Commission Staff

By _____
Counsel for California Energy Commission Staff

Exhibit A to Stipulation between
Three Mountain Power, LLC and Energy Commission Staff

SHASTA CRAYFISH BARRIER STUDY

BIO-10 Prior to the start of any site mobilization, the project owner shall provide payment of $250,000 to the CPM which will be deposited in a state-managed account set up specifically to fund a Shasta crayfish barrier study, as described in Appendix C of the *Recovery Plan for the Shasta Crayfish (Pacifastacus fortis)* (USFWS 1998). Implementation of the study shall be overseen and managed by the CPM.

The study shall be awarded by the CPM, in consultation with U.S. Fish and Wildlife Service, to a research entity that can demonstrate it possesses the experience to successfully implement and complete the study and that has or will have necessary permits required by state and federal laws to conduct the study.

Upon completion of the study, all reports and other final work products shall be delivered to the CPM, U.S. Fish and Wildlife Service, and California Department of Fish and Game and shall be publicly available.

Verification: Within one day prior to the start of any site mobilization, the project owner shall submit to the CPM payment of $250,000 for deposit into a state-managed account set up to fund the Shasta crayfish barrier study. The CPM shall make every effort to have the research entity identified no later than nine months after site mobilization.

AQUATIC AND TERRESTRIAL MOLLUSKS STUDY

BIO-11 Prior to the start of any site mobilization, the project owner shall provide $100,000 to the CPM which will be deposited in a state-managed account set up specifically to fund a study of aquatic and terrestrial mollusks that reside in the Burney Basin area. The study shall focus on distribution, abundance, taxonomy, or life history requirements of aquatic and terrestrial mollusks, including those identified in Biological Resources Table 1.

The scope of work including reporting requirements shall be developed by the CPM in consultation with U.S. Fish and Wildlife Service and U.S. Forest Service. Implementation of the study shall be overseen and managed by the CPM. Upon completion of the study, all reports and other final work products shall be delivered to the CPM, U.S. Fish and Wildlife Service, U.S. Forest Service, and California Department of Fish and Game and shall be publicly available.

Verification: Within one day prior to the start of any site mobilization, the project owner shall submit to the CPM payment of $100,000 for deposit into a state-managed account to fund the mollusk study. The CPM shall make every effort to have the research entity identified no later than nine months after site mobilization.

DECLARATION OF
Dr. Obed Odoemelam

I, Obed Odoemelam declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Protection of the Energy Facilities Siting and Environmental Protection Division as a Staff Toxicologist.

2. A copy of my professional qualifications and experience is contained in the Final Staff Assessment Part 1 (Exhibit 56).

3. I prepared the staff testimony on Public Health, contain in the Final Staff Assessment Part 2, for the Three Mountain Power Project based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: _____ Signed: _____

At: Sacramento, California

DECLARATION OF
Michael Ringer

I, Michael Ringer declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Protection of the Energy Facilities Siting and Environmental Protection Division as a Health and Safety Program Specialist I.

2. A copy of my professional qualifications and experience is contained in the Final Staff Assessment Part 1 (Exhibit 56).

3. I prepared the staff testimony on Waste Management, contained in the Final Staff Assessment Part 2, for the Three Mountain Power Project based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: _____ Signed: _____

At: Sacramento, California

DECLARATION OF
David Flores

I, David Flores declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Protection of the Energy Facilities Siting and Environmental Protection Division as a Energy Facility Siting Planner II.

2. A copy of my professional qualifications and experience is contained in the Final Staff Assessment Part 1 (Exhibit 56).

3. I prepared the staff testimony on Visual Resources, contained in the Final Staff Assessment Part 2, for the Three Mountain Power Project based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: _____ Signed: _____

At: Sacramento, California

DECLARATION OF
Steve Baker

I, Steve Baker declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Protection of the Energy Facilities Siting and Environmental Protection Division as a Senior Mechanical Engineer.

2. A copy of my professional qualifications and experience is contained in the Final Staff Assessment Part 1 (Exhibit 56).

3. I prepared the staff testimony on Reliability and Efficiency, contained in the Final Staff Assessment Part 2, for the Three Mountain Power Project based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated:_____ Signed: _____

At: Sacramento, California

DECLARATION OF
Richard Buell

I, Richard Buell declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Protection of the Energy Facilities Siting and Environmental Protection Division as a Siting Project Manager.

2. A copy of my professional qualifications and experience is contained in the Final Staff Assessment Part 1 (Exhibit 56).

3. I prepared the staff testimony on Project Description, contained in the Final Staff Assessment Part 2, for the Three Mountain Power Project based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: _____ Signed: _____

At: Sacramento, California

DECLARATION OF
Gary Walker

I, Gary Walker declare as follows:

1. I am presently employed by the California Energy Commission in the Environmental Protection of the Energy Facilities Siting and Environmental Protection Division as an Energy Facility Siting Planner II.

2. A copy of my professional qualifications and experience is contained in the Final Staff Assessment Part 1 (Exhibit 56).

3. I prepared the staff testimony on Land Use, contained in the Final Staff Assessment (FSA) Part 2, and Alternatives, contained in the FSA Part 3, for the Three Mountain Power Project based on my independent analysis of the Application for Certification and supplements hereto, data from reliable documents and sources, and my professional experience and knowledge.

4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.

5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: _____ Signed: _____

At: Sacramento, California